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OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 *till* 5 *o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from* 10 *till* 1 *o'clock.*

Our Views.—A Retrospect of the Year.

Letters.—Rational Development (Bankart)—P. O. P. (Partridge)—Lantern-slide Carriers (Vevers)—Free Demonstrations (Fuerst)—Speed Numbers (Britannia Works Company)—Winter Photography (Baron)—Mezzotype Paper (Carlotype Company)—Hackney Photographic Society and Mr. Austin (Grant)—Temperature of Solutions (P. R. S.).

Articles.—Lantern-slides—The A B C of the Lantern—Polychrome Projection by Means of Non-Coloured Photographs (Vidal)—Amidol for Lantern-slides—Photographic Lens Testing at Kew (Darwin)—Experiments with the Magic Lantern—Construction of Twin Lens Hand-Camera (Enn Ess)—How to Print in Carbon (Hodges)—Exposure in Lantern-slide Making—Single Lime-light Lanterns for Lecture Purposes (D. W. Noakes).

Our Lantern Screen.—Our Dissolving Views—Lantern Novelties—Monthly Lantern-slide Competition.

EDITORIAL DEPARTMENT—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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"Amateur Photographer" Monthly Lantern-Slide Competition, No. 44.—Latest day, January 14th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, January 28th, 1893).

"1893" is with us, and 1892 is numbered with the past. Looking back, we find that the past twelve months have been productive of a considerable amount of solid work on the practical side.

One of the first things to attract our attention is the completion by Mr. F. E. Ives, of Philadelphia, of his researches upon Heliochromy, and the delivery by him before the Royal Society and the Society of Arts of lectures, illustrated by examples, which were acknowledged by all to be convincing proofs of the correctness of the theory and methods by which they were reproduced. This naturally attracted much notice, and for some considerable time both English and foreign journals devoted much space to the subject, and many of the foreign papers were illustrated by chromo-collotypes produced by Ives' method. As early as 1890 an illustration by this process was issued with the *Photographic Quarterly*, and Messrs. Waterlow, the producers of this print, have been still continuing their work and have adapted it to the half-tint or grained block process, and several coloured supplements printed from three blocks have been issued by weekly journals.

Hand-cameras have been more than ever in evidence, and we are glad to note that the same have been used more intelligently than ever. There has been less pure snap-shotting for the sake of exposing plates, and greater endeavour for the attainment of artistic work. Each passing year sees the decreasing use of these instruments for what may be called detective purposes.

With ordinary cameras the only noticeable feature has been the increased application of aluminium in lieu of brass.

In the department of optics, Ross and Co., the well-known opticians, have introduced their concentric lenses, which possess a flatness of field and freedom from astigmatism hitherto unattainable. Zeiss, the renowned Jena optician, has still further increased his list of anastigmatic lenses, and the latest lenses are all of the doublet type, composed of five glasses, and work with apertures of *f*/4·5, *f*/6·3, and *f*/9 respectively. Probably owing to the increased influence of the artistic school, greater attention has been paid to the use of single uncorrected lenses for subjects requiring or permitting of broad treatment, and in obedience with the apparent demand a properly constructed lens of the spectacle lens type has quite latterly been manufactured by Messrs. Dollond and Sons under the name of the "Monocle;" also in photographic optics we have Mr. Dallmeyer's "Telephotographic" objective, the first communication concerning which Mr. Dallmeyer made to the Camera Club in January last, giving it as his purpose to provided lens, the object of which is to produce a large primacy image of sufficient brilliancy to be of practical value in rapid photography, and dispensing with the inconvenient weight and bulk of an instrument of exceedingly long focus which might give a similar result. Subsequent improvements followed, and at the Photographic Exhibition last autumn some results were exhibited sufficient to carry conviction as to the measure of success which had attended Mr. Dallmeyer's endeavours.

The photo corrector, invented and exhibited at the Charing Cross Exhibition by Mr. Van der Weyde, will, when it becomes more known and more generally employed, rank amongst the best things of the year.

Plate manufacturers have in some instances increased the sensitiveness of the emulsion enormously, and this without sacrificing any good qualities, and vistas of hitherto impossible work are opened up. If report speaks truly, we are to have still further advances, and one naturally wonders how far sensitiveness may be carried without introducing incipient fog or absence of keeping power. The question of speed determination is one which calls for concerted action, as in the present state of tho question different standards are used and the supporters of neither will give way.

The theory of the multiple coated plates as a means of preventing halation and kindred faults has been put to positive test in the Sandell plates issued by Messrs. Thomas and Co., Limited.

Our list of developers has been considerably augmented. Amidol, metol, and glycin, all organic developers, have been discovered, and the first of these promises to be of immense value both for ordinary and instantaneous work. It has been stated, moreover, that amidol will give greater sensitiveness with a given exposure than any other developer. In connection with this we may note that Messrs. Hurter and Driffield have admitted that they have found that eikonogen will give under like conditions greater sensitiveness than pyro, which is somewhat contradictory to their previous statements.

Printing processes of rough surface and warm tones have received greater attention than ever, and the exhibition at Pall Mall was noticeable from the absence of silver prints and the prevalence of rough surfaces of warm colours and low in tone. The new cold-bath platinotype paper has led to far greater use of this process, and the greater power of modification of results by treatment of the print with glycerine prior to development, places in the hands of an artist a far more powerful artistic weapon. The introduction by the Eastman Company of their Solio, a gelatino-chloride paper, has tended still more to the use of this process.

Nor must we omit to mention a printing paper which has been introduced, namely, the Mezzotype, a rough-surfaced silver paper, which has been successfully placed on the market, and one which has been received with an encouraging amount of support from those who are in favour of rough printing surfaces for pictorial effects.

Increased attention has been paid to technical training for photographers, and the P. S. G. B. commenced in the early part of the year a series of lectures with this end in view. The Affiliation of Societies has received greater support, and would doubtless receive more if the advantages to the societies were placed more prominently before them.

The proposal of a Photographic Institute and centre for the dissemination of photographic technology has been brought prominently forward by such able exponents of the scheme as Prof. Meldola, H. Elder, Howard Farmer, and others, and whilst the Photographic Society of Great Britain have been appealed to as the proper body to take the initiative steps, everything but the mere discussion of the idea remains as yet to be done.

Personal interests, the party enmity which comes of differences of opinion, criticism of others' failings are for the moment forgotten and disputations hushed as we look back upon the army of photographers, and notice in the front rank the inroads made by the relentless hand of Time, and miss here a comrade, there a veteran leader whom Death has removed. Mr. J. S. Stas, Mr. W. Notman, not of this country but united to Englishmen by a common sympathy which is international, Mr. Vandyke of Liverpool, Mr. Cecil V. Shadbolt, and Mr. Edward Cocking are some amongst the missing.

Photo-mechanical processes have received more attention than ever, and Messrs. Morgan and Kidd and Hazell, Watson, and Viney, Ld., have laid down complete collotype plant.

Photographic books have been as numerous as in previous years, and the leading ones are: "Guide Pratique pour l'Emploi des Surfaces Orthochromatiques" (Mathet), "La Pratique des Projections" (Fourtier), "Virages et Fixages" (Mercier), "Manuel de Chimie" (Maumené), "Amateur Kunst" (Paulussen), "Die Praxis der Moment Photographie" (David and Scolik), "Handbuch der Photographie" (Pizzighelli), "Jahrbuch der Photographie" (Eder), "Die Photographische Camera" (Eder), "The Optics of Photography and Photographic Lenses" (Traill Taylor), "The Optical Lantern for Instruction and Improvement" (Pringle), "Instruction in Photography" (ninth edition, Abney), "Modern Photography" (tenth edition, Burton), "Ilford Manual of Photography" (Bothamley), "Bromide Paper" (Ward and Woodbury), "The First Principles of Photography" (Leaper), "Practical Enlarging" (Hodges), "A Manual of Photography" (Brothers), "Photographic Enlargements" (Wheeler), "Photo-mechanical Processes" (Wilkinson), "The American Annual of Photography" (Fallowfield), "Practical Guide to Photographic and Photo-mechanical Printing" (Burton), "The Photographer's Companion" (Dunmore), "Photography Annual," "Luther's Catechism" (Brothers), "The Ilford Year-book," "Photo-micrography" (Bousfield), "The Practical Photographer's Annual" "The British Journal Almanac," "The Year-book of Photography." Our publishers have issued: "The Optical Lantern as an Aid to Teaching" (Bothamley), "Art of Retouching" (second edition, Hubert), "The Amateur Photographer's Annual," "The Lantern-Slide Manual" (Hodges), "Sun Pictures," "Photographs of the Year."

Quite typical of the times is the great multiplication of photographic societies and clubs. In the suburbs of London and in the provinces hardly a week has passed without the announcement of a new club or association, and as a natural sequence an increasing number of photographic exhibitions have been held or are announced as forthcoming. And with the thought of exhibitions comes the recollection of contentions, disputes, and bickerings alike regrettable and useful. Useful, because dissensions stir up the lethargy of conventionality and tend towards newer efforts in the direction of reform, exposing the error of traditions and the abuse of old-fashioned rules, suggesting fresh possibilities and opening up new channels for adventure. The chief of photographic exhibitions, that at Pall Mall, was marked last year by something like an organised attempt to desert it on the part of a number of well-known exhibitors, who hold purely artistic expression to be the best use of photography; and almost contemporaneously was held, in the rooms of the Camera Club, the first photographic exhibition in the metropolis which could be regarded in the light of a serious rival; and as the persistent effort on the part of prominent leaders of the artistic section succeed (as there seems little doubt it will) in severing more completely the art from the scientific interest in photography, it may be that the Camera Club Invitation Exhibition of picture photography held with such eminent success will become historic and a landmark in the annals of monochrome art; and as the year comes to a close a new scheme is successfully launched for the establishment of a new and cosmopolitan club in London which shall absorb or resuscitate older institutions whose vitality seems ebbing away.

TURNING now to that side of photography which is wholly artistic in its aims, it can hardly be denied that very considerable progress has been made. Those who are most notably associated with the art side of photography can in no wise be said to be mere visionaries or indolent dreamers. This is seen in the persistent efforts to further and to make known the artistic claims which they uphold, and the readiness to encourage younger endeavour when the motive is sincere. The extreme faction of the artistic school (and in this and similar connections it is almost impossible the avoid the use of such hackneyed terms as "school" and "faction") have strongly favoured rough surface and out-of-focus methods; whether on account of any especial merit therein or because of their departure from conventionality we need not here opine, but certain it is that such methods are becoming increasingly adopted—possibly even with a danger of producing these things *ad nauseam.* Still, there is everywhere seen in exhibitions and elsewhere generally an universal feeling for artistic effect and expression, and, as is only natural, the weaker and younger copy, perhaps unconsciously, the style and manner of the older hands—rough surfaces, warm brown tints, suppression of detail, and the attempt to idealise the subject and give expression to the poetic. In societies and competitive exhibitions overwhelming encouragement has been given to this class of work. Artistic photography, which in many and high places was met with contemptuous derision, is now condoned, even greeted with admiration. As the path of artistic photography has become smoother, progress has become more rapid, and by such collections as Brussels, Lincoln, Charing Cross, and others, its best claims have had opportunity of fair judgment. There has been frequent evidence that the champions of artistic photography are more strongly knit together than is generally known, and it is probable that an organisation or brotherhood exists which, though its place, conditions, and proceedings are not made known to the world at large, should prove at any future date a very powerful factor in the progress of artistic photography. Be this or other circumstance as it may, the scientific and artistic in photography, if no longer able to run together in harness, have during the past year made perhaps equal progress and leave little room for doubt but that in the future prospects of both there is ample cause for satisfaction.

During the year the number of photographic periodicals has been augmented. Thus whilst York Street, Creed Lane, and Coventry have with practically no alteration or change continued to regularly issue their respective papers, the *Photographic News*, under its proprietor-editor, has shifted its quarters. *Photographic Work*, edited by Mr. T. Bolas, is a new introduction published by Messrs. Piper and Carter. *The Hand-Camera and Lantern Review* is published fortnightly. The *Photographic Review of Reviews* (Mr. Walter D. Welford) is rapidly approaching the completion of its first year. Whilst the above additions have been made, the *Photographic Quarterly* was discontinued after the issue for July 1st.

Although the year can hardly be said to have produced any especial pictorial masterpieces, yet there is no doubt that work of real merit and of high-class order has been turned out. And so the year closes consistent throughout in its capricious climate.

Of our work in the columns of the paper we need hardly speak; our readers, we are sure, are better able than we are to appreciate our efforts.

Our Competitions have again been better supported than ever, and during the last few months the quality of work has shown a distinct advance. The Competitions arranged for this year are as follows:—

Latest Day.	Competition.	Subject.
Jan. 14.	MONTHLY LANTERN SLIDE. ...	Portraiture and Figure Study.
Feb. 11.	„ „ ...	Instantaneous Work.
Mar. 11.	„ „ ...	Architecture, Exterior and Interior.
Mar. 31.	STEREOSCOPIC	
April 13.	MONTHLY PRINT	Hand-camera Work.
May 15.	„ „	Architecture.
June 16.	„ „	Figure Study.
June 30.	PHOTOGRAPHY AT HOME ...	
July 17.	MONTHLY PRINT	Landscape.
Aug. 11.	„ „	Seascape and River Scenery.
Sept. 18.	„ „	Hand-camera Work.
Sept. 30.	ANNUAL LANTERN SLIDE ...	
Oct. 14.	MONTHLY „ „ ...	Landscape.
Nov. 11.	„ „ „ ...	Sea Pieces and River Scenery.
Dec. 14.	„ „ „ ...	Portraiture and Figure Study.

Dec. 31.—HOLIDAYS WITH THE CAMERA.

Our Illustrated Supplement will be continued each month as in the past.

As a special feature, we commence this week a series of articles entitled "The A B C of the Lantern," in which we shall hope to include practical notes in alphabetical form.

Our publishers request us to draw the attention of our readers to the important announcement they make on p. viii. We understand that this has been under consideration for some time, and that it was thought a suitable opportunity at the commencement of a new year to make the scheme public. THE PRESENT SUBSCRIPTION TO THE "AM. PHOT." FOR 12 MONTHS IS 10s. 10D., BUT IT IS NOW RAISED TO 11s., AND WILL CARRY WITH IT A COPY OF THE "AMATEUR PHOTOGRAPHERS' ANNUAL," which is published at 2s. This offer is made *for 12 months' subscription only;* for less periods the subscription remains the same, and, of course, no free copy of the "Annual" will be given. We trust many of our readers will take advantage of this handsome offer, which is, we believe, unique in photographic journalism.

We must now close our brief retrospect with hearty good wishes to all.

In our last issue Mr. J. N. Huggins expresses his emphatic dissent to our previous remarks on so-called "moonlight" photographs. We must heartily concur with him in the concluding paragraph of his letter, in which he says, "Personally I hold most emphatically that any effect true to nature is justifiable where the object is a picture pure and simple, and that there is no reason whatever why the particular method employed to obtain such effects should be even commented upon."

But are these under-exposed sunsets true to moon-lighted nature, or can they hope to be except by mere chance or perchance with a very rare knowledge of nature combined with almost unlimited control of photographic methods?

We are not at all sure that the only difference between sunlight and moonlight is in the intensity of light, for, to begin with, cloud forms by day and night are, with rare exceptions, very different, a circumstance probably dependent upon the difference of heat on the aqueous vapours which constitute them, also the *relative* tone of sky background, and the lights and darks are changed.

That a "good moonlight effect in photography is probably as true to nature as most photographs," cannot and need not be disputed, because probably *most* photographs are *not* true to nature. Or, supposing it be admitted that "the difference between sunlight and moonlight is only the varying intensity of the light," who has measured that difference so as to be able to under-expose it to just that sufficient amount?

We do not fail to recognise that some very effective things have been done which might well pass muster as genuine "moonlights," but so also might an historical subject be rendered if given sufficient plasticity of the model and carefully studied environment, and yet, somehow, we feel as if in the end the counterfeit would be detected.

Strangely erroneous ideas seem to exist as to the legitimate in art and photography, of which, however, we may find opportunity of saying more anon.

* * *

The Photographer's Record is to hand with a seasonable article on "Snow Pictures."

Letters to the Editor.

RATIONAL DEVELOPMENT.

SIR,—In reference to your leader in issue of December 30th, as Mr. Simkins refers to my name in his lecture at Birmingham, perhaps you will not think a few remarks from me on this subject to be intrusive.

Your reply to enquirers as to the use of fixed alkali seems to express too much formula, and is likely to puzzle some with multiplicity of details.

If photographers will grasp the main simple idea of the *use of citrate* in development it is all as easy as possible, and I would like to say to all enquirers, use your ordinary developer or the plates you are accustomed to (the thicker the film of silver salts you can obtain the better the result is likely to be), but instead of adding *at once* the full dose of alkali necessary to finish a plate up to printing density, *begin* with only about a *quarter* of that amount, and let the development progress slowly and delicately until you can *see* that you *have got all the detail in the shadows* you *desire*, then add the citrate, which is intended to *stop the production of any further latent detail*, and which at the same time preserves the plate from the "fogging" effect of the stronger alkali used later on for bringing up the density.

Give the citrate sufficient time to thoroughly permeate the film, and then (still using the same developer) go ahead with building up density by gradually adding more alkali until the density is sufficient, but note that where citrate has been used it takes a little more pushing with alkali to obtain density than when it has not been introduced.

Development may be divided (mentally) into three stages: (1) *Development proper*, with weakish alkali to obtain the requisite detail. (2) *Stoppage of development* entirely by use of citrate. (3) *Redevelopment* in order to *build up to printing density* the detail already secured.

These three stages fixed in your mind, you cannot well go wrong in working.

I think it does not matter what developer or alkali is used, provided it is a suitable one for the make of plate under treatment, and it is a safe course to use the manufacturers' formulæ. Pyro with ammonia, soda or potash, eikonogen, hydroquinone, or anything else will do, if you understand their use and work on the lines before stated, and as regards the citrate it is of equally small importance whether the solution be citrate of ammonia, soda, or potash, but it will probably be safest to use the same base as that employed in the developer, *i.e.*, if pyro and ammonia is used adopt citrate of ammonia; if soda or potash is developed with, use citrate of soda or potash as the "stopping agent." It is very easy to prepare. One ounce of citric acid is dissolved in five or six ounces of water, to which add a sufficient quantity of either soda, potash, or ammonia to *exactly neutralise* it to test paper; if difficulty is found in making it exactly neutral, it is better left *very slightly* acid rather than alkaline; make up to ten ounces with water, and you have it right strength—a ten per cent. solution. A few grains of salicylic acid added prevents its going mouldy, as it is apt to do if kept long.

I use half a fluid drachm to each ounce of developer employed, but if a considerable excess is used it seems to increase the difficulty of obtaining density after.

Regarding the formula for *re*-development (stage 3), no extra precaution is necessary. The ordinary alkaline solution is good enough, but for convenience sake I keep a stronger solution of the kind, and use it from a dropping bottle. The main point is to have a sufficiency of bromide with the alkali to keep it in restraint; the glycerine acts only in a mechanical way, and seems to tend somewhat to easier attainment of density, with at the same time preservation of cleanness of deposit, and freedom from "fog." If objected to on any other ground it can be left out; it is not absolutely essential.

Mr. Simkins' demonstration was a very bold and successful one, and it speaks volumes for the method when two plates with such wide exposures as one to five can be developed into equally good negatives, but do not let that fact induce photographers to *intentionally* give *excessive* exposures. There is undoubtedly an *accurately exact exposure possible for every subject.* The difficulty is to estimate it correctly. To fall short of it is to fail utterly, but to overshoot it in moderation is not so, because by this method the production of the latent image is at the command of the operator, can be stopped at any stage of its production by the use of citrate, and the image so far permitted to form can be strengthened to printing density. It gives the operator entire command with a correctly-exposed plate, whether he will make his negative soft and full of detail with only moderate contrasts, or whether he will have bold contrasts of light and shade. In the latter case he has simply to stop the development soon enough; in the former, to let it go on. Each "subject" must speak for itself as to the *effect desired*, and the operator is responsible for the result, but as a rule it is best to leave nature's light and shade to assert itself, to let the detail come up gradually, *watching the deepest shadows carefully*, and when the required detail is decidedly visible and before any veil begins to form (such as over-exposure tends to produce) to apply the citrate, always kept in a separate measure handy for immediate use.

The peculiarity of citrate seems to be that, no matter how dirty the surface of the plate may become by forcing up the density, the negative comes out of the fixing bath clear and of good printing quality.

Let any one try the following experiments as to use of citrate. Develop a fully-exposed plate delicately to such moderate density as will show all the required detail. Wash it thoroughly under the tap; apply the citrate solution by means of a brush to *only half of the surface;* wash again, taking care that the untreated half does not get any citrate over it, then intensify to printing density, fix, and notice the difference between the two halves of the negative; one clean and bright, the other probably fogged to considerable extent.

The moral is: *Try to estimate carefully the correct exposure for every subject.* If in doubt as to deep shadows, err rather on the over-exposure side than the reverse, and trust to watchful and prompt use of the citrate to set matters right if you find the image coming up too rapidly in development. There is no better guide than *the way the image commences to appear.* Knowing the subject beforehand, you are prepared for what ought to show first, the sky or other extreme high lights, then the stronger half tones, and by the time these show you can say to a certainty if the exposure has been correct, or if over-exposed, and proceed accordingly.

I write this to urge photographers not to pin their faith to chemical formulæ entirely. Any formula will work well if it is used with sufficient judgment, and my own experience is that there is nothing which excels the old combination of pyro and ammonia for quality of result, though sometimes negatives are not so "pretty" as by other processes. The final result is the print. All else should be sacrificed to fine printing quality.—Yours, etc.,

GEO. BANKART.

* * * *

P. O. P.

SIR,—With reference to the toning of Ilford P.O.P. in the sulphocyanide bath (I have not tried Mason's), I find that it is never necessary to print much more deeply than is required in the finished print, provided that the negative is a *fairly vigorous one.* Hardly anything is lost in toning, and the print darkens as it dries. But if the negative is a very soft one, then it is desirable to print deeper, for the print loses a good deal in toning. Such, at all events, is my experience. I also find that in the present damp season the paper generally prints more or less red instead of purple, and when it does so it does not answer to overprint *at all.* I mount my prints while wet, after blotting off with fluffless paper, and smooth out all bubbles with a damp sponge, and then when dry matt surface, if desired, with pumice powder. I always use the chrome alum bath before toning. I do not see how, working in this way, one *can* fail with P.O.P.—I am, yours, etc.,

F. PARTRIDGE.

* * * *

LANTERN SLIDE CARRIERS.

SIR,—Replying to Mr. James' last letter on this subject, in which he quotes his specification claims, I would point out that he claims *too much* in his patent specification. His claim appears to be for the application of a lever and an inclined plane in lantern slide carriers, which at once invalidates his claim for a patent, as this principle is no novelty. Indeed, such a carrier has been manufactured, advertised, and sold by a very well known firm for a long time.

In *my* specification I claim not the principle of the lever and inclined plane, but a particular application of them to specified parts of the carrier, thus:—"An inner sliding carrier grooved at

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A Happy
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ASHTEAD, SURREY.

the under side, and containing, or having, a lever used in conjunction with *a triangular or other shaped projection in the groove of the outside frame* of a lantern slide carrier."—I am, yours, etc.,

Leeds, December 31st, 1892. C. C. Vevers.

* * * *

FREE DEMONSTRATIONS.

Sir,—We beg to inform you that we have appointed Mr. L. E. Morgan (formerly with the Fry Manufacturing Company) for the purpose of giving practical demonstrations of the use of the Amidol developer.

We should be glad to receive applications from any photographic societies or clubs who may be desirous of arranging for Mr. Morgan's attendance at their meetings, in order to demonstrate development with Amidol.—Yours truly, Fuerst Bros.

* * * *

SPEED NUMBERS.

Sir,—In reply to Mr. Watkins' letter in your last issue, we beg to say for his information, that the speed of our medium isochromatic plates was in no way altered when the price was reduced. If he tries them again, we have no doubt he will find our statement is correct.

It is hardly necessary to point out to Mr. Watkins that if his tests were made in the evening, or when yellow rays predominated, the iso. plates would necessarily have the advantage, but our tables of comparative speeds are stated definitely to refer to exposures under ordinary conditions.

We need only add, for the information of your readers, that any information we give regarding our plates may be implicitly relied on; self interest, if not common honesty, would ensure this.—Yours truly, The Britannia Works Co., Ltd.

Ilford, January 2nd, 1893.

* * * *

WINTER PHOTOGRAPHY.

Sir,—I trust Mr. Hodges will allow me to take a friendly exception to the opening statement of his interesting article on the above subject in last week's issue. He says—

> "With the great majority of amateurs outdoor work with the camera during the winter months is scarcely thought of, much less attempted. With the fall of the leaf the camera and its accessory apparatus is usually packed away until the bright green foliage of spring heralds the approach of the more voluptuous beauty and warmth of the summer. But why photographers should thus voluntarily impose upon themselves this long period of inaction, the writer is at a loss to conceive, for the opportunities of successful picture-making in the winter are at least equally numerous, and the conditions generally far more favourable than in summer."

Now, Mr. Hodges is a gentleman for whom I have a great respect. I never omit to read every word of his masterly contributions with avidity, have devoured his work on "Practical Enlarging," and hope to pay the same close attention to his "Lantern Slide Manual" at no distant date. But in making this remark as to the wilful apathy of the great majority of amateurs, does it occur to him what their path in life is?

I have not the pleasure of Mr. Hodges' acquaintance, but I picture him as a fortunate mortal with a comfortable private income. Should my surmise be correct, there is no difficulty in the way of his fully enjoying photography all the year round. May I ask how many of your readers are like myself, or perhaps even worse off still? I have the misfortune to belong to the ranks of the common or garden species of the City clerk. I leave home at 8.30 and get back at 6, therefore morning and night are not much good. On Saturday I get home at 2, and am ready to go on the warpath at 3, at which hour, with a plate registering about 999 Warnerke (by the way, Mr. Watkins, what would be the equivalent to that on *your* scale?) one might secure an artistic study of the lamplighter. So in the winter months Sunday is the only available opportunity, and I prefer not to appear in public with my camera on that day, as if you run across people with prayer book under their arm and an escort of olive branches in the Sabbath uniform of college caps. etc., they give one a look that would personally make me wish my bellows were of extra long extension, so that I could take shelter in the privacy of their accommodation. I will, however, run the risk of adverse comment by frankly admitting that I frequently work several hours indoors on a Sunday, and possibly I am not alone in this respect.

As regards the summer, I have often been out at six in the morning, and have had my apparatus all ready to go out directly after tea, thus securing an hour or so in the evening, while on Saturdays I often take the camera to the City in the morning, and have had some very enjoyable afternoons around Enfield.

Mr. Hodges makes my mouth water when, further on, he recounts his winter visit to Burnham Beeches. I should be glad of the opportunity myself, and would willingly act as light porter to a worker of his experience; but were I to dare to ask my principal for a day off to go photographing, the probability is that he would make a rush for the door and give instructions to send for the nearest lunacy officer and a stretcher.

Then, again, our leading workers are good enough to urge us to go over the ground the day before, noting at what time the picture can be taken at its best, and giving us hints as to careful composition, etc., but, situated as I am, and many others also, I venture to contend that it is not practicable for the majority of amateur knights of the camera to pay that close attention to the fascinating art of which our esteemed contributor is such a shining light, and therefore its relinquishment is in many instances compulsory, instead of voluntary.

Apologising to Mr. Hodges and to yourself for the length of this effusion, allow me to conclude by tendering my best wishes for a happy and prosperous new year.—Yours truly,

The Baron.

* * * *

MEZZOTYPE PAPER.

Sir,—In an article in last week's issue of the Amateur Photographer, you recommend for Mezzotype a ten minutes' immersion in normal fixing bath. As we have made a good many trials with fixing baths of different strengths, will you permit us to give what results have proved to be a good formula. It is—Hypo, 1 oz.; water, 10 oz. The print to remain in for thirty minutes. This may seem to many an unnecessarily long time, but the reducing action of a weak bath is very slight, and it is much safer to use. Since issuing this paper we have been so fortunate as to receive very few complaints about it, and all the failures have been caused through insufficient fixing, generally resulting in a mottled appearance, commonly called measles, we believe, or a darkening of a portion of the surface (the unfixed part) after drying.—Yours, etc., The Carlotype Company.

[The statement was deliberate and intentional, the idea being to obtain the full effect of the reducing action of a strong bath in order to get a grey tone. For ordinary work, as we have previously noted, we prefer the weak bath.—Editor.]

* * * *

THE HACKNEY PHOTOGRAPHIC SOCIETY AND MR. AUSTIN.

Sir,—Will you kindly allow me to call attention to the fact that Mr. Austin has not carried out his promise of taking proceedings to recover the silver medal he claimed.

I must take it, and we trust the whole of the photographic world will take it, that Mr. Austin acknowledges his defeat by backing out of this affair.

I think you will agree with me that Mr. Austin's conduct has neither been gentlemanly nor straightforward in this matter. After the letter he wrote to *Photography*, followed by his letter to us saying he would take proceedings if the medal was not forwarded to him, simply to ignore the whole thing without a word of apology to the Hackney Photographic Society is hardly the behaviour one might expect from a straightforward opponent.

I am sorry he has not had the pluck to acknowledge his defeat—I was going to say mistake—but feel I cannot do that after his letter to *Photography.*

With this letter the matter will close so far as we are concerned. The silver medal will be sent to Mr. A. Brooker, who was second, Mr. Carpenter taking the bronze.

Thanking you for so kindly allowing me the space in your paper for the correspondence in this matter.—Yours, etc.,

J. O. Grant.

* * * *

TEMPERATURE OF SOLUTIONS.

Sir,—Your note on the above subject interested me very much. I have a very cold dark-room, and I had a little experience last week that may possibly interest you.

I went out one morning and exposed two plates on the same subject, and used the same stop, and gave exactly the same exposure. When I developed the first plate I used the developer the same temperature as I took it down from my dark-room shelf. I had to develop for fully ten minutes, and it resulted in a very poor, weak negative. Before I developed the next plate I filled the dish with hot water. I then emptied it, and placed the plate in and poured the developer on as usual, and in two minutes I had a good plucky negative.

This plan I find to be better than warming the solutions, or going to the expense of warming my room. It is simple and cheap.—Yours truly, P. R. S.

How to Print in Carbon.

BY JOHN A. HODGES.

CHAPTER II.

POSSESSION of a good negative must be regarded as essential to the production of a good print in carbon, for with poor, thin, weak, and, possibly slightly-fogged negatives, justice cannot be done to the process. Now, I must be pardoned for the assertion—though I have no hesitation in making it—that a great many present-day amateurs have a very imperfect conception of the particular qualities which constitute perfection in a negative, for the simple reason that they probably have never had the opportunity of seeing one. But this want of knowledge, though greatly to be regretted, cannot be wondered at when it is remembered that amateur photographers, as a body, are either entirely self-taught, or depend for their instruction upon some friend whose knowledge of the subject may not be greatly in excess of their own. Therefore it is not surprising that those who have acquired their photography in this manner should not be able to recognise the characteristic features of a technically perfect negative. Unfortunately for photography and the permanence of photographs, the two processes which are most popular amongst amateurs at the present time, *i.e.*, gelatino-chloride printing-out paper and bromide paper, tend to favour the production of poor negatives. In saying this I do not wish to be misunderstood. Poor, thin negatives *will not* produce *the best* results upon either bromide or gelatino-chloride printing-out paper; but better results can probably be obtained from such negatives upon those papers, than could be got by other processes. But whatever may be done with a weak and thin negative with either of the processes referred to, the beginner should appreciate at once that with such negatives the finest results will not be attainable by the carbon process. A good, vigorous, but not hard negative, showing plenty of gradation and detail, with the highest lights just sufficiently strong to preserve the purity of albumen paper until the shadows begin to bronze—such a negative should yield good prints in carbon, or, indeed, in any other process. How may such negatives be produced? By giving a generous exposure, by the use of a well-restrained pyro developer, and by carrying development much further than usual. A great many amateurs spoil their negatives by being in too great a hurry, they use too much accelerator, bring up the image too quickly, and for fear of fog ensuing wash off the developer before sufficient intensity and detail has been obtained. I must not forget, however, that I am writing upon carbon printing, and not upon development; but as the possession of suitable negatives is so essential to success in working the process, I trust I may be pardoned for the digression.

Before proceeding further, it may be well to point out one or two distinctive features of the carbon process. In the first place, the development of the image takes place *from the back of the tissue*, the result being, if the process is worked by what is called the single transfer method, the reversal of the view. That is to say, in a print so developed, objects on the right would appear on the left, and *vice versa*. With some subjects, such as portraits, etc, this would not be a matter of very great moment, but in architectural views and topographical work generally, the reversal could not, of course, be tolerated. By resorting to what is known as the double transfer method, non-reversed prints are obtained. The process is as follows. Instead of being developed upon the transfer paper which becomes the final support of the image in the single transfer process, the exposed tissue is squeegeed on to a piece of Sawyer's temporary support, or to a prepared zinc or glass plate, upon which development takes place; a piece of the prepared transfer paper is then brought into contact with the developed image, squeegeed, and allowed to become thoroughly dry, when the picture attached to the transfer paper may be detached from its temporary support. Non-reversed prints can also be obtained if a reversed negative be used for printing from, but probably few workers will care to go to the trouble of making reversed negatives. Those, however, who are in the habit of printing from enlarged negatives may easily reverse them by putting the transparency in the enlarging camera with the film side *outwards*. The recent introduction of celluloid films makes the carbon process a much simpler one, for by printing from the back of the film negative the necessary reversal is effected, without resorting to the more troublesome double transfer method of developing. It has been suggested that printing through the film would cause a loss of definition, but in practice this will be found to be so trifling that it may usually be entirely disregarded. Indeed, from an artistic point of view the slight softening of the picture which results will more often be found an improvement than otherwise.

Before proceeding to print from the negative it will be necessary to provide it with what is technically termed a "safe edge," the object being to secure a clear margin of tissue round the picture unacted upon by light, which will prevent the picture detaching itself during development. This may be conveniently and expeditiously done by applying strips of ready-gummed opaque paper, such as are used for binding lantern slides, to the margins of the negative; or a black stopping-out varnish may be applied with a camel hairbrush; but the binding-strip method will be found cleaner and more expeditious.

I have already stated that the tissue is procurable commercially in a sensitive condition and ready for exposure, but as some of my readers, and particularly those who live far from town, may probably prefer to sensitise their own tissue, I will now briefly describe the manner in which the operation is effected. There are, no doubt, advantages to be gained by sensitising one's own tissue, for sensitised tissue, unless carefully preserved from atmospheric influences,rapidly deteriorates, and the finest results can usually only be secured on freshly sensitised tissue. The novice in carbon printing may probably hear from some of his photographic acquaintances that sensitising carbon tissue is an operation not unattended with danger to himself. This arises from the fact that bichromate of potash when absorbed into the skin, by abrasion or otherwise, is apt to produce a troublesome kind of skin affection. If there were any serious danger of this kind to be apprehended it would obviously be my duty to warn the reader of the possible risk which he might be incurring, but I believe that with ordinary precautions and working in the occasional manner, and with the small amount of material that an amateur usually requires, the chances of injury resulting are extremely remote. The disease first shows itself by an itching on the back of the hand and fingers. Mr. E. W. Foxlee, who is *facile princeps* in all that pertains to the carbon process, and who has, I believe, himself suffered from the affliction, recommends the application of nitrate of mercury ointment to the affected parts. He says that the danger lies not in the sensitising of the tissue, but during development when the pores of the skin are opened by the warm water. The wearing of indiarubber gloves during the operation of developing will prove an absolute preventive, though, if ordinary cleanliness be observed, and the hands well washed with carbolic soap after developing, the chances of any ill-effects accruing to the amateur working in an occasional way, are, as I have said, remote indeed.

The sensitising solution is made by dissolving 1 oz. of the bichromate of potassium in 30 oz. of water, and adding 20 gr. of carbonate of ammonia. The object of adding the carbonate is to secure the neutrality of the solution which, if acid, would cause the tissue to become insoluble. If the bichromate is neutral it will not be required. A deep porcelain dish should be about half filled with the solution. The pigmented tissue should have been previously cut to the size required. Sensitising may be effected either by flotation or immersion; the latter will be found slightly easier in practice, and there will be less chance of air-bubbles forming. If the dish contain a sufficiency of solution, several pieces of tissue may be immersed at the same time, but should any air-bells form upon its surface, they must be immediately removed with a camel-hair brush. At this season of the year (winter) the time of immersion should be about four minutes, or slightly less. When it becomes thoroughly limp, it is removed from the solution by gently drawing it over a glass rod, so that the surplus liquid on the surface of the tissue may be got rid of. In warm weather much less time—probably about two minutes—will suffice. As the operation of sensitising must not be conducted in daylight, it will be found convenient to sensitise and dry the tissue by artificial light in the evening. The drying of the tissue is a more important matter than the reader might suppose. If it dries too quickly it will become brittle and insensitive; on the other hand, if it dries too slowly it will become partially or wholly insoluble, according to the length of time occupied in the process of drying. The tissue should be suspended by means of American clips, from cords stretched across the dark-room. With a temperature of 60 F. the tissue should dry in about five or six hours. The room should be well ventilated, but free from dust. When quite dry it may be packed flat in paraffin wax paper, and kept under pressure in an empty printing frame. Tissue so prepared will probably remain in good order for about four of five days.

* * *

City of London College.—The fifth annual college soiree was held on 31st ult., when the members of the College Photographic Society exhibited a number of mounted photographs, and also a large collection of lantern slides. The entertainment was much enhanced by two capital lantern lectures. The first lecture was given with the Peak and Dale slides, lent for the occasion by the AMATEUR PHOTOGRAPHER, which were heartily appreciated by a large audience. Subsequently the Brechin Photographic Association's very interesting and instructive series on "Linen and its Production" were passed through the lantern and warmly appreciated. Messrs. Cook and Slaughter manipulated the oxy-hydrogen lantern, while Mr. W. Fell gave the descriptive readings.

Our Lantern Screen

A MONTHLY SUPPLEMENT OF

"The Amateur Photographer."

No. 3. JANUARY 6, 1893.

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Has been raised to **11s.**, but this will include a copy of "The Amateur Photographer's Annual."

OUR LANTERN SCREEN.

A Monthly Supplement to the "Amateur Photographer."

No. 3. **JANUARY 6, 1893.**

Our Dissolving Views.

We publish elsewhere a complete list of our Monthly Competitions, from which it will be seen that the lantern will by no means be neglected. We hope our readers will support the competitions well, and let us have some first-rate slides in our sets.

Competitors are probably not aware that on the payment of a small fee they may see the whole of the slides of any competition, so that they may be able to form some idea of what class of work is required for the first places. More is to be learnt from examining a set of slides on the screen than heaps of reading.

We have hinted that it was our intention to cut down societies' reports, but we publish *in extenso* a report of the S. Manchester Society, which contains the details of a lecture delivered by Mr. W. I. Chadwick, and which contains much that will be of general interest.

It has interested us particularly because this Christmas we had to give a lantern lecture to a mixed audience, but with a preponderating number of juveniles, and to please both we had some very finely painted so-called comic slides, slipping and lever slides, and also some really good slides of landscape and sea pieces, etc., and to our astonishment we found that the comic slides were not so well received as the others.

The demonstration lantern as a means of amusing audiences has, we think, been much neglected. If a somewhat popular subject is taken, it is astonishing how interesting it may be made both to juvenile and adult audiences.

"The A B C of the Lantern," which we commence this week, will enable our readers, we hope, to utilise many experiments for amusement and instruction. This article will, if possible, appear weekly and be written as plainly and as simply as possible, and as numerous friends have consented to join us and help us with the same, we are sure it will be found accurate and reliable.

We had the pleasure of exhibiting and describing the Amateur Photographer Prize Slides last week at the Polytechnic, Regent Street, and were much struck with the working of the lantern, a very fine triunial. Although at a distance of over 85 ft. from the screen the definition of the 18 ft. disc was excellent and the illumination perfection.

Some years back Messrs. Perken, Son, and Rayment placed at the disposal of the Editor of the Amateur Photographer a handsome biunial lantern, which might be loaned to any of our readers for charitable purposes. In many cases it was found that it could not be used, on account of the necessity of using gas, as it was not fitted for oil lamps. Messrs. Perken, Son, and Rayment have now, however, given us two lanterns in place of the biunial, which may be used for oil.

We shall be glad to hear from any of our readers who may wish to borrow these lanterns. The only conditions for the loan of the same are (1) that they shall be used for charitable purposes, (2) that they shall not be loaned to photographic societies. If those desiring to borrow one of these lanterns will, at the time of application, inform us whether they intend working with the lime or oil lamp, we will send them out properly fitted up. There are no booking fees, and the borrower will merely have to pay carriage both ways.

We are quite sure all our readers will appreciate the kindness of Messrs. Perken, Son, and Rayment, and these handsome lanterns, with a set of our lantern slides, which we also loan free for charitable purposes, will, we hope, enliven many dull nights during the season.

Lantern Novelties.

The following lantern novelties have been noticed since the appearance of the last number of "Our Lantern Screen:"—

The "Optimus" Magnesium Lamp; "A. P.," December 16th, p. 453.

The Blackfriars Combined Lantern Mask and Binder; "A. P.," December 16th, p. 453.

The "Optimus" Universal Copying Lantern; "A. P.," December 23rd, p. 464.

Houghton and Sons' Lantern Glass.

Messrs. G. Houghton and Son, of 89, High Holborn, E.C., have submitted samples of their cover glasses, both thick and thin, and, although selected at random, they are surprisingly uniform in thickness, very accurately cut, and free from flaws. The special thin glasses are very nice, and we wish all our competitors would use them.

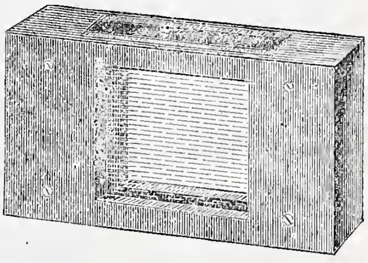
Butcher and Son's Specialities.

W. Butcher and Son, of Blackheath, S.E., and 315, Regent Street, have submitted several lantern novelties:—

"A Plume of Feathers," which is a lantern slide illustrating a seasonable sight, namely, a tree in winter garb. On the screen this slide represents very truthfully the beautiful feathery character of the snow.

Lime Cylinder Holder.—This is well made in japanned tin with brass screw, and is perfectly air-tight, and at the reasonable price of 1s. should be in every lanternist's kit.

A New Chemical Tank.—This is an improved and larger tank than usual, being square in form, and the price, 2s., is considerably lower than usual. If our readers will take the trouble to perform a few experiments in the lantern, as suggested elsewhere, as a variation to the ordinary run of lantern entertainments, this tank will be very useful.



The Paget Prize Printing-out Lantern Plate.

(Price 1s. 6d. per dozen.)

The Paget Prize Dry Plate Company have sent us samples of these new lantern plates, and, after an extensive trial, we are much pleased with them. We also received a specially devised printing out frame. which enables one to fix both negative and plate with the greatest ease, although we have found that for lantern work, using the ordinary lantern slide printing frames, there was no difficulty in ensuring the replacing of the plate in the same position by using a wedge of cardboard.

We have found that these plates will give very fine results, and the tones vary from warm black to rich sepia. Printing has to be carried much farther than is usual with printing-out paper. The following are the directions:—

Printing may be done in an ordinary frame, half of the back being opened, as is usual with printing paper.

The progress of printing is best judged by reflected light, and should be carried on until the densest parts of the negative (which should be clear glass in the finished transparency) begin slightly to print. It must be borne in mind that the density of an image to be seen by transmitted light requires to be much stronger, and, therefore, more fully printed than in the case of paper.

As the slightest want of sharpness in a lantern slide is greatly magnified on the screen the plate should under no circumstances be removed from the negative until completely printed; unless a frame specially made for the purpose be used.

Print by direct sunlight when possible, and as, in order to ensure the greatest possible sharpness, it is desirable that the light always fall at the same angle on the negative, the frame, after being examined, should be replaced in the same position as before. To prevent mistakes mark one side of frame "top," and keep it so.

When using a frame larger than the negative, it is necessary to adopt some means of preventing extraneous light from reaching the edges of the lantern plate. A mask will answer this purpose; but it must, of course, be put on the back of the negative (not the film side).

Toning.—Either of the following well known baths answers admirably.

COMBINED TONING AND FIXING BATH.

No. 1. Stock.

Hyposulphite of soda	20 oz.
Alum (potash alum only)	5 ,,
Sodium sulphate (not sulphite)..	14 ,,
Water to	1 gallon.

Dissolve the hypo. and alum each in about one quart of hot water, mix, and then add sodium sulphate already dissolved, making up to one gallon with remainder of water. This mixture should then be left for some hours for the precipitate to settle, when the clear solution may be poured off or filtered and is then ready for use. It will keep indefinitely.

No. 2. Stock.

Gold chloride	15 gr.
Acetate of lead	64 ,,
Water (distilled)	8 oz.

Dissolve the acetate of lead in the water, and add the gold. A heavy precipitate forms in this solution, which should be shaken up when any is to be poured out; it redissolves when added to No. 1 stock solution. For use: Mix 8 oz. of No. 1 with 1 oz of No. 2. With this bath, the plates should be rather more fully printed than when separately toned. They should *not* be washed *before* toning.

SEPARATE TONING BATH.

Sulpho-cyanide of ammonium	30 gr.
Gold chloride	2½ ,,
Water	16 oz.

Before immersion in this toning bath, the plates should be very thoroughly washed for at least 15 minutes in running water. This is necessary to ensure even toning.

In hot weather, if necessary, the plate may be soaked in alum (alum 4 oz., water 20 oz.) for five minutes before toning in this bath.

Another thorough washing is necessary between the alum and toning baths.

The image in a transparency, which has to be toned right through, of course takes longer than a paper print, which is toned on the surface only, and the colour should only be judged by transmitted light.

FIXING BATH.

Hyposulphite of soda	3 oz.
Water	1 pint.

THE PAGET PRINT-OUT OPALS.

We have also received samples of these opals, which are tested exactly the same as the lantern slides. They may be obtained either glazed or matt-surface, at 1s. 8d. per dozen for half-plates.

To those of our readers who wish to ornament their homes these printing-out opals will be a great boon, as, mounted in brass or lead, they form capital and artistic lamp shades and fire screens.

WHITAKER'S PHOTO. COLOURS.

Mr. J. B. Whitaker, of the Chemical Works, Kendal, has sent us a sample box of photo. colours for colouring lantern slides, etc.

These are beautifully transparent and show up brilliant and clear on the screen. They are sold in 3s., 3s. 6d., 5s., 6s., and 9s. boxes, and to the amateur desirous of adding beauty and natural appearances to his slides they will be a great boon. They are easy of application and show up as brilliant as any varnish colours.

LANTERN FIXTURES.

Jan. 5.—CAMERA CLUB.—Lantern evening.
,, 6.—HOLBORN —Practical demonstration on "The Optical Lantern," by Mr. F. J. Cobb.
,, 6.—LEWISHAM.—"Lantern Slide Making on Collodion Plates," by Mr. E. Eastwood.
,, 6.—BLACKBURN.—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
,, 12.—LONDON AND PROVINCIAL.—"Testing Oxygen Gas," by Mr. F. B. Grundy.
,, 13.—CROYDON (Micro.)—Trial night. Members' slides.
,, 13.—MUNSTER.—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
,, 14.—HULL —Slide exhibition.
,, 17.—HACKNEY.—"Lantern Slide Colouring," by Mr. S. J. Beckett.
,, 18.—EASTBOURNE.—Hand-cameras and lantern slides from negatives taken with same.
,, 19.—LONDON AND PROVINCIAL.—Monthly lantern night.
,, 19.—GLOUCESTERSHIRE.—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
,, 19.—LIVERPOOL A. P. A.—Lantern night.
,, 19.—OXFORD.—Leeds Phot. Soc. slides.
,, 20.—CROYDON (Micro.)—1893 Convention Slides.
,, 20.—HEREFORDSHIRE.—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
,, 23.—DEVONPORT (Camera Club).—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
,, 24.—PLYMOUTH (Graphic Soc.)—AMATEUR PHOTOGRAPHER 1882 Prize Slides.
,, 24.—HACKNEY.—"A Day in the Zoo," lantern night, by Mr. Lewis Medland.
,, 25.—THE PHOTO. CLUB.—Lantern and musical entertainment (ladies' night).
,, 25.—DEVONPORT (R. N. College).—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
,, 25.—LIVERPOOL (Camera Club).—Members' lantern slides.
,, 27.—HOLBORN.—Lantern night; 101 slides selected by the P.S.G.B. at Pall Mall, 1892.
,, 30.—S. MANCHESTER.—"A Trip to Switzerland," illustrated, by Mr. C. Lord.
,, 30.—WAKEFIELD.—Lantern exhibition.
,, 30.—TODMORDEN.—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
,, 31.—BURNLEY.—AMATEUR PHOTOGRAPHER 1892 Prize Slides

A KODAK GATHERING.

THE presentation of a testimonial to Mr. and Mrs. W. H. Walker by the employés of the Eastman Company, Ld., took place on Thursday, December 29th, 1892, when some two hundred members of the staff and friends gathered together. The various branches of the business were represented. The occasion was the presentation of a handsome silver salver to Mr. Walker on his retirement from the active management of the business, and Mr. A. W. Rider, the Secretary of the Company, on behalf of the employés, presented the same, and spoke at length on the rapid increase that the business had made since Mr. Walker first opened the London depot. Mr. Walker acknowledged the gift in suitable terms, and after listening to an interesting musical and dramatic entertainment the company separated at eleven o'clock.

It is understood that although Mr. Walker is retiring from the active management and daily routine of the business, yet he still retains his seat on the Board, and the business will as heretofore have the full benefit of his advice and experience.

Experiments with the Magic Lantern.

A well attended meeting of the South Manchester Photographic and Lantern Society was held on 26th ult., Mr. W. I. Chadwick in the chair. Mr. J. Beesley was elected a member. In reply to a question the Hon. Secretary, Mr. W. M. Thomstone, said that it was not necessary that members should be either amateur photographers or lanternists, as the alternate monthly meetings were of a popular character interesting to most people.

Mr. Chadwick read a paper and gave a highly successful and interesting demonstration of the capabilities of a magic lantern, or, as it is now called, the optical lantern, which instrument, Mr. Chadwick said, was now recognised by all science teachers as one of the most valuable at their command. But of the thousands possessed by amateurs for private and home use, few were ever used for any other purpose than showing slides on a screen. We may entertain our friends at home with a miscellaneous collection of slides—holiday reminiscences, or wanderings in a foreign land—and when our store of slides has been exhausted there are scores of thousands of others to be obtained by purchase or hire. Indeed, so many are there, of all places and all subjects, that it is not surprising to hear of people becoming confused with the variety when looking through some trader's catalogues, and in not a few cases people had been known to become quite demoralised in their selection and to finally decide upon say five or six dozen comic slides.

Continuing, Mr. Chadwick said—Not very long ago the superindent of a ragged school called upon me, and I promised to give a lantern exhibition at his school. We had some talk about the class of audience and the nature of the entertainment. "Bring plenty of comic slides, something to laugh at," said he. But I had my own ideas about that, and persuaded him to leave the selection to me. When the time arrived I found that my audience consisted of about 300 or 400 boys and girls, from twelve to twenty years of age. I told the superintendent and some of his committee who were present that I intended to test the taste of boys and girls, and to educate them if possible to a higher standard, and I started with "Half an Hour at the Seaside," a popular scientific lecture. The slides were very pretty pictures, and I talked to them about the seashore, the clouds and the sky, the salt water and the sea weeds, the pebbles and the shells, cockles, mussels, the crab and shrimp, and so on; and then we went to sea in a fishing smack, and after landing our fish we saw it being sold by auction at Grimsby Docks, then packed in boxes, and finally we found ourselves at the Manchester Wholesale Fish Market. I then told my audience that the next few pictures would speak for themselves. They were of two distinct kinds, and would be shown two of each kind together alternately. The first two were most beautiful photographs of snow and frost, the second two comic pictures, followed by two statuary slides, and then came two more comic, some things to laugh at, but nobody did laugh. I further explained that they could have plenty of either kind, and it was for them to say which they liked best, the pretty pictures or the comic. They decided by an overwhelming and almost deafening majority in favour of the pretty pictures and "more seaside." Then I gave "Dick's dive in a duck-pond," and concluded the exhibition with a few photographs of trotting horses and other animals in motion shown by a wheel of life adapted to the lantern, and I have every reason to remember that audience as a most appreciative one. When all was over I asked the superintendent what he thought. Here, I said, I have given two short scientific lectures, shown over eighty scientific slides, and only six comic slides, which latter were not appreciated. Now this is a lesson that might be carried away in hundreds of cases. Science need not be dry or uninteresting or difficult to understand. On the contrary, it could, by aid of the lantern, be made a source of endless entertainment and instruction. and the lantern, when properly constructed, lends itself to almost every branch of science. By it experiments and demonstrations to our friends at home may be conducted with far less expenditure in apparatus and material than by any other method. It would be out of the scope of the present communication to enumerate the home experiments that may be performed even with an oil-burning lantern and a few accessories that are easily made or purchased for a few shillings. But how to begin? Well, there are plenty of books published on the subject of optical projection, and a new one, just published, "Sunshine," by Amy Johnson, F.R.A.S., is a delightful lantern book, comprising a series of about forty popular experimental lectures on science delivered to young people, with special considerations for optical projections. Indeed, there is a section of the book devoted to lantern projection with practical hints and home experiments. Another charming little book is "Soap Bubbles and the Forces which Mould Them," by Professor C. F. Boys, F.R.S. This book also contains a section of practical hints to the lanternist, for making and projecting those interesting and fascinating playthings of our boyhood, soap bubbles. The author also describes other experiments, "so wonderful and yet so simple that, if they had been performed a few hundred years ago, the rash person who showed them might have run a serious risk of being burnt alive." Lastly, "Science at Home," a pamphlet by the late W. B. Woodbury, is recommended as containing a number of beautiful lantern experiments, all of which may be easily performed in our own family circles by the merriest tyro.

Respecting the lantern itself much might be said in favour of limelight, though for home use a good oil lamp—one that does not smell or burn like a roaring furnace—is very convenient, and answers most purposes if the screen be not too large. A good opaque screen about four feet six inches square was generally large enough for home use with an oil lamp; but in a larger room—still using the oil lamp—a translucent screen of about the same size would be better; and it might be worth while to mention that only a few days ago a most successful exhibition was given to an audience of over 200 people on such a screen—three feet six inches square—with an oil lamp, and it will be seen that had the pictures been projected to seven feet by the same luminant, the illumination would only have been one-fourth, because seven feet square is four times the area of three feet six inches. By using compressed oxygen in cylinders as now supplied commercially, there is practically no danger in using the limelight, and it might truly be said to be as safe or safer than a paraffin lamp.

Mr. Chadwick then proceeded to exhibit a number of experiments. A wire stand was made to support a thin metal plate in a horizontal position (edgeways to the condenser), and under it was placed a spirit lamp. In a few seconds the plate became quite hot, and then a single drop of water was allowed to fall upon the hot plate. The drop of water at once assumed the spheroidal form, and on the screen it could be seen separated from the plate by a film of vapour. The spirit lamp was then removed, and as the plate cooled the drop of water burst into steam and was gone. This beautiful experiment illustrated a frequent cause of steam boiler explosions. From suddenly letting off steam the water in the boiler assumes the spheroidal form, and a thin film separates the water from the boiler, which latter rapidly heats. The engine driver or the fireman, thinking his water is getting low, pumps in cold water. He thus cools the boiler, destroys the spheroidal form, and the accumulated heat, suddenly converted into steam, bursts the boiler. A long-focus lens is best for showing this experiment. The same experiment is often seen in the kitchen, when cold water is put into a hot frying-pan, and the water runs about in "blobs." This was followed by experiments illustrating the retention of images on the retina by pieces of perforated card placed in the lantern. White spots were seen on a dark screen. After a minute the light from the lantern was shut off and the screen dimly lighted from a gas bracket in the room. The audience saw the spots now reversed and quite black on a white screen. When a photographic negative of a portrait was projected on the white screen and looked at for a minute, the portrait was not always recognisable, but directly the light was shut off the image was "seen" as a positive and at once recognised. As some one once said, "You see it when you don't see it, and then you do" A number of experiments in colour were next performed, producing the complementaries, followed by some most interesting optical, chemical, cohesion, and adhesion experiments. By what is known as the vertical attachment applied to a lantern, other experiments were produced, including the motion of camphor on the surface of water. A number of thin shavings of camphor were delivered to the water surface and projected on the screen, when they were seen, much magnified, rotating and twirling about in a manner extremely interesting, but not unaccountable, for the motions of camphor are now well understood by scientists. It was also shown that camphor was not the only substance that produced similar motions under similar conditions. The lecture was brought to a close by a number of ingenious mechanical arrangements. A chameleon was made to show changes of colour; primary colours produced white light; and, by a wheel of life adapted to the lantern, the motions of trotting horses, birds on the wing, and other animals in motion were shown upon the screen.

Catalogues.

Optical Lanterns and Accessories. By W. I. Chadwick, 2, St. Mary's Street, Manchester.

Mr. Chadwick, with his well-known energy and ability, is now turning special attention to lantern matters, and the catalogues before us are extremely interesting and complete. Numerous instructive articles, originally delivered by Mr. Chadwick before numerous societies, are included, and many a piece of apparatus for the higher uses of the lantern.

Monthly Lantern Slide Competition.

SEA PIECES AND RIVER SCENERY.

*** Red. = reduction; con. = contact.

Holt, H. (Liverpool).—"Ferry Nab, Windermere." "Old Beaver Pool, Bettws." Red.; Ilford; hydro soda. Two very beautiful slides, and deservedly take Silver Medal.

Gear, J. H. (London).—"Going to Sea" and "Running into Harbour." Red.; Imperial; pyro and amm.; uranium toned. Beautifully soft, and show well on screen. The slide which we reproduce might well have the boat on left cut out.

Davidson, Capt. W. N. C. (London).—"The Winding of the Yar" and "In Tow for a Sail." Red.; Ilford; hydro soda. The slide we reproduce is exquisite, and had the other been equal in quality it would have run Mr Holt hard for first place. The horizon is too central in the second slide, and too much foreground.

No. 1.] "BEAVER POOL." [*H. Holt.*

SILVER MEDAL.

Hargreave, S. (Kendal).—(1) "Fleshwick Bay." Con.; Ilford; hydro. Too weak and flat. (2) "Port Erin." Con.; Ilford; hydro. Over-exposed, wants clouds.

Ellis, J. W. (Liverpool).—(1) "Weymouth Harbour." Con.; Ilford special; ferrous oxalate. Too muddy. (2) "The River Llugwy." Con.; Ilford special; hydro. Over-exposed and flat.

Emery, G. (Hove).—(1) "Morning." Red.; Ilford special; hydro. Clouds too weak. (2) "In Lowestoft Harbour." Ditto. Ditto and over-exposed.

Hammond, H. H. (Southsea).—(1) "Troopship *Serapis*." Con.; Ilford special; hydro and caustic potash. (2) "Training Brig, *Seaflower*. Ditto. Both technically good, but not artistic.

Morgan, H. G. (Bromyard).—(1) "Ramsgate Inner Harbour." Red.; Cowan's, hydro; toned sulpho-cyanide amm. and gold. (2) "Ramsgate Sands." Red.; Paget rapid; hydro; toned as above. Two effective but rather heavy slides.

Reeder, W. T. (Scarborough).—(1) "Sunset, Scarborough Harbour." Red.; Paget rapid; quinol. (2) "The Great Harbour, Amsterdam." Con.; Paget slow; quinol. Both a little too flat, and clouds not distinct enough.

Wain, E. B. (Stoke-on-Trent).—(1) "In the Harbour, Peel, Isle of Man." Red.; Paget slow; Rodinal. Toned by bleaching with mercury and redeveloped with sodium sulphite. (2) "Mudlark Douglas, Isle of Man." Ditto. Two charmingly artistic slides, but a little too thin and weak.

Dawes, W. (Plumstead).—(1) "On the Ourthe, Belgium." Con.; Mawson; pyro and amm. (2) "Steam Launches, Kingston." Ditto. Rather too hot in tone.

Dowdall, A. (Exeter).—(1) "Fingle-bridge on the Teign." Con.; Thomas'; hydro. (2) "Brampford Speke, on the Exe." Ditto. This is a little too flat and thin, and No. 1 just a trifle too brilliant.

Dunsmore, W. (Glasgow).—(1) "Favourite View." Con.; Paget; hydro. (2) "Waterfoot, near Eaglesham." Ditto. This is too heavy in the foreground, but might be made a good thing of. No. 1 is very poor.

Neill, D. J. (Aintree).—(1) "River Leny, Callander." Con.; England's; hydro. (2) "River Teith and Bridge, Doune, Perthshire." Ditto. Better effects could have been obtained by longer exposure. Slides too harsh.

Hunter, D. (ork)—(1) "By the River Lee, Cork." Con.; Fry's; alkaline pyro. (2) "Ballycotton Rocks." Ditto. Very poor slides —too weak and thin and a bad colour.

Hunter, W. (Cork).—(1) "On the Lee, Cork." Con.; Fry's; alkaline pyro. (2) "Near Healy's Bridge, Cork." Ditto. See note to previous competitor.

Dean S. (Huddersfield).—(1) "Miners' Bridge, Bettws-y-Coed." Con.; Ilford special, hydro. (2) "Low Tide, Whitby Harbour." Ditto. Both slides a little too brilliant, and the latter is the least artistic bit in this harbour.

Atkins, R., M.A., M.D. (Waterford).—(1) "The Megstone Rock, Saltees, co. Wexford." Red.; Ilford, quinol caustic. (2) "The Nord Fjord, Norway from Faleide." Red.; Edwards' Iso., pyro and carbonate of amm This is a magnificent slide, excellent in colour and softness, but the other is very poor.

Ballantyne, T (Glasgow).—(1) "On the Crinan Canal. No. 1." Red, Paget slow, hydro. (2) "On the Crinan Canal; No. 2." Ditto. Both would have stood more masking, and in No. 2 the horizon is not straight.

Ellsworth, W. S. (Liverpool).—(1) "Brig o' Turk." Con.; England, hydro. (2) "On the Exe." Ditto. Two good slides; the latter wants more distinct clouds; both would stand masking more.

Taylor, C. D. (Manchester).—(1) "On the Esk." Fry's; con., hydro. (2) "On the Tweed." Thomas; con., pyro and amm. We can hardly understand such unequal work. No. 1 is excellent, and No. 2 an awful colour and wants clouds.

Shaw, J. (Manchester).—(1) "Evening." Mawson; red., clouds con, pyro amm. (sulpho.) (2) "Miller's Dale, Derbyshire." Mawson; con., sulpho. pyro. Two very fine slides. No. 2 might have had clouds with advantage.

White, M. (Wimbledon).—(1) "On the Suir, at Waterford." Red.; Ilford special; hydro. Artificial light used (mag. wire). (2) "A Tributary of the Suir." Con.; Ilford Alpha; hydro. (mag. wire). No. 1 wants clouds, and No. 2 is a fearful colour.

Smith, W. (Liverpool).—(1) "On the Artro, Llanledi." Red.; Mawson, hydro. (2) "On the Nantcol, N. Wales." Red.; Mawson; hydro. Two capital slides spoilt for want of clouds.

Farmer, H. E. (Loughton).—(1) "With the Tide, Portsmouth Harbour." Red.; Ilford special; quinol and caustic potash. Taken from a Hat camera held in the hand. Very good work. (2) "Romney Weir and Windsor Castle." Ditto. The figure and weir not pleasing. Slide a little too heavy.

Turney, H. (Forest Hill).—(1) "A Calm Day at Eastbourne." Red.; Imperial; hydro. and soda. (2) "The Ravensbourne, near Catford." Ditto. Two good slides spoilt by the absence of clouds.

Elliott, N. (Coldstream, N.B.).—(1) "Rounding the Pier, Berwick." Con.; Ilford special; hydro. The figures do not add to the beauty. (2) "At the Ferry, Berwick Harbour, at the Mouth of the Tweed." Red.; ditto. An excellent slide spoilt by the figure of the lady in the foreground.

Brendon (Liverpool).—(1) "Ferry Boat on the Mersey." Red; Thomas', hydroquinone. (2) "Running in Second." Ditto. Both from hand-camera negatives. Both want clouds, and No. 1 is not artistic.

Pollock, J. (Belfast).—(1) "The Corsair." Red; Ilford, pyro and amm. (2) "Falls in Glenariff." Red; Mawson; pyro and amm. Excellent work, highly commended.

Morris, T. H. (Pontypridd).—(1) "Across the Fellte." Red; Alpha, hydro and soda. (2) "Falls of the Fellte." Ditto. Very poor work.

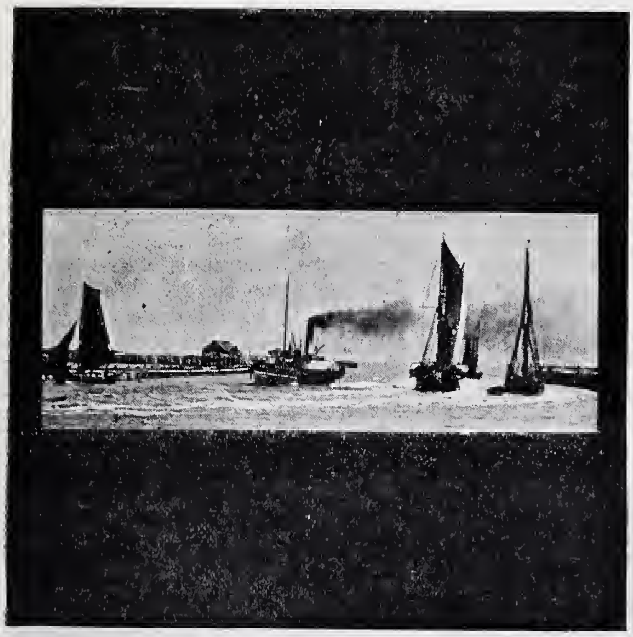
Henderson, J., jun. (Glasgow).—(1) "Campsie Glen." Con.; Paget slow, hydroquinone. (2) "2½ ton Rater Yacht." Ditto. No. 1 too heavy, and No. 2 wants clouds.

Cole, C. (Exeter).—(1) "The River Teign." Red.; Thomas', hydroquinone. (2) "The Exe-Brampford Speke." Ditto. This latter would be improved by clouds.

Oldfield, W. (Manchester).—(1) "Douglas Harbour, No. 1."

Con.; Imperial, hydroquinone. Taken from hand-camera negative. (2) "Douglas Harbour, No. 2." Ditto. Both too thin, and want clouds.

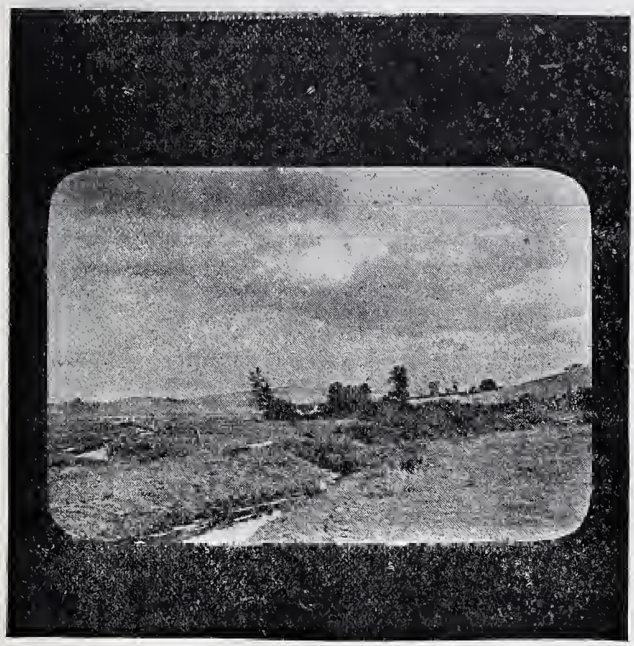
Cooke, A. G. (Tottenham).—(1) "The Tower of London." Con.; Ilford; hydro. (2) "Outward Bound." Ditto. Both good work, but No. 1 a little heavy.



No. 2.] "GOING TO SEA." *[J. H. Gear.*

BRONZE MEDAL.

Austin, G. (Anerley).—(1) "Lowestoft Harbour." Con.; Thomas; hydro. (2) "Deal Beach." Ditto. Both too weak, and No. 1 wants clouds.



No 2a.] "THE WINDING OF THE YAR." *[Capt. Davidson.*

BRONZE MEDAL.

Deacon, E. (Ramsgate).—(1) "Shades of Evening: Vessel entering Ramsgate Harbour." Con.; Thomas; hydro. (3) "Northward Ho! Vessel being Towed to Sea." Ditto. Technically good, but poor artistically.

De Morgan, S. (Ryde).—(1) "Freshwater Bay." Con.; England's chloride; hydroquinone and potash. (2) "Sea Wall, Ryde, I.O.W." Ditto. Capital slides, clear, and yet soft.

Gowing, A. R. and L. F. (London, N.W.)—(1) "Lake Leman: A Light Breeze." Con.; England's chlor.; hydro. (2) "Lake Leman: Squally." Con.; Wood's slow chlor.; pyro and amm. Highly commended by judges.

Timmins, C. A. (Runcorn).—(1) "In the Norwegian Fjords." Red; Edwards'; pyro. (2) "Sunset at Sea." Ditto. Highly commended, especially No. 1.

Stabb, J. (Bayswater).—(1) "The Thames from Waterloo Bridge." Con.; Mawson; pyro and amm. (2) "Off Southend Pier. Ditto. No. 1 a good slide; No. 2 wants clouds.

Firth, G. F. (Wakefield).—(1) "Evening." Con.; chlor.; hydro. (2) "The Ferry Boat." Ditto. Commended by judges.

Hume, P. (Newcastle-on-Tyne).—(1) "The Old Bridge of Invercauld." Con.; Mawson; pyro and amm. (2) Bridge of Feugh, Banchory." Ditto. Both would be improved by more distinct clouds.

Lantern Slides.

During the winter months nothing is more entertaining or interesting than to pass in review with one's friends, by means of the lantern and screen, the results of the summer's work, or a summer's tour, in the shape of lantern slides. These are so easily made now on most any of the variety of specially prepared lantern plates to be had that they form a most satisfactory method of obtaining positive prints from the negative. The two principal ways of making slides is by contact and by reduction in the camera or a special dark-room. Contact is perhaps the simplest plan, and may be performed at night by the aid of artificial light, and is especially useful in making slides from hand-camera negatives or from sections of large negatives. It is advisable to use a printing frame a trifle larger than the negative, having a clean glass inserted in the usual place of the negative; then the latter is placed, film side up, on the glass. This allows freedom in the changing of the position of the negative in the frame, and of the sensitive plate when placed in contact. If the picture is not straight on the negative, it may be put straight on the slide-plate by holding the frame up to a ruby light and looking through the lantern-plate, pressing the latter, while in a vertical position, in contact with the negative by the thumbs of each hand. While thus clamped, a slight release of the pressure of the fingers will permit the slide-plate to be rotated until, in looking through, the lines will be seen to be correct. All this is much more quickly done than it takes to describe it. After the plate is adjusted, a sheet of black cloth or paper is laid upon its back (this avoids halation when a exposure is made); then the back of the frame is clamped in. A trial exposure of ten seconds may be made two feet away from a kerosene lamp, a gas-burner, or an incandescent electric lamp. To determine how nearly correct it is, the exposed plate should be put into a uniform developer, and the development continued until the film is pretty well affected all the way through, or the image appears by reflected light rather darker than it should. There should also appear details in the high lights. Much discretion is here required, but after a few trials the desired result is easily found. After development the plate is slightly rinsed in water and then fixed in solution of hyposulphite of soda, washed for half an hour in changing water and then dried. The following developer, recommended by Mr. William M. Murray, of the Society of Amateur Photographers of New York, will give warm tones if the exposure has been long enough:—

Hydroquinone	100 gr.
Sodium sulphite	400 „
Potassium carbonate	400 „
Water...	20 oz.

To form the developer use 1 ounce of the above, to which add $2\frac{1}{2}$ to 3 ounces of water.

Another rather simple developer, producing very clear slides, is made as follows:—

Amidol	20 gr.
Sodium sulphite	80 „
Distilled or rain water	8 oz.

Take 1 ounce of the above and add 2 ounces of water. Mix besides a saturated solution of sodium sulphite in water, and add half a dram at a time in case the exposure is short or development long. —*American Amateur Photographer.*

The A B C of the Lantern.

UNDER this title we have endeavoured to collect together in alphabetical form, useful information about the lantern, its various parts and accessories, and also details of the higher uses to which the lantern may be put for experimental and demonstration purposes.

THE EDITOR.

Aberration of Condensers. See CONDENSERS.

Aberration of Objectives. See OBJECTIVES.

Absorption of Colour. See COLOUR.

Achromatism. In experimental optics, illustrated by aid of the lantern, achromatism may be shown by the aid of a pencil of light (*q. v.*) and two prisms, the latter being obtainable at the nominal price of 5s. from any dealer who caters for students of the Science and Art Department. The action of one prism should be shown first, and then the second or correcting prism slipped in front and either bound to it by india-rubber bands slipped over each end, or a small wooden or brass case may be made in which one prism is fixed at the ends by the aid of Canada balsam, enough space being left for the second prism to just slip into place.

Achromatic Lenses. See OBJECTIVE.

Acoustics. As many of the experiments in acoustical science depend entirely upon the sense of hearing, it necessarily follows that with the lantern we are limited to those which depend to some extent on the sense of sight; at the same time there can be no better method of showing diagrams than by the aid of a lantern and slides. As the preparation of such will be treated of elsewhere (see DIAGRAMS), we need not here consider them.

Wave motion may be shown by the aid of Crova's disc, which is prepared by ruling excentric circles on a blackened plate of glass. This disc, when finished, is mounted so that it may be rotated on an axle, with one of its horizontal radii across the field of the condenser, and by use of a cap or plate, with a horizontal slit on revolution of the disc the successive condensations and expansions of sound waves will be shown by a series of moving bright dots.

The vibration of bells, etc., may be shown by placing a thin glass beaker so that the edge is in the centre of the field. A small pith ball hung on fine wire or silk just to touch the edge will be thrown off on drawing a violin-bow across the edge of the beaker.

Sound nodal points may also be shown in somewhat the same way, by filling the beaker with water and exciting the same by drawing a resined finger or piece of smooth india-rubber along the edge.

Vibrating forks may be shown very easily by Lissajou's tuning forks. A parallel pencil of light is focussed on a black screen (we may note here that for nearly all experiments in "light" and "acoustics" black screens must be employed), and in the path of the same a tuning fork, provided with a mirror, is placed; this mirror reflects the light on to another mirror, whence it is again reflected on to the screen. When the fork and mirror are thus carefully arranged, the spot of light is refocussed for the screen, and the tuning fork may be set in motion when the light will become a line instead of a spot on the screen, and if the mirror be slowly rotated the vibrations will be represented as ripples.

The most interesting and at the same time gorgeous slides of acoustic figures may be obtained by means of an instrument called an eidophone, shown in one of its most convenient forms in the diagram, fig. 1. This is simply a tube with mouthpiece A, which is connected with a receiver C, across the mouth of which is stretched a vibrating membrane, B. A sheet of glass and the disc are coated with some transparent liquid colour, and the plate is laid wet side uppermost on a table. "The disc is now reversed, set vibrating, and while vibrating is moved along the surface of the wet plate. As it glides over the moist surface, while a steady note is sustained, it leaves behind it a register of every vibration recorded with the strictest accuracy." Fig. 2, shows a series of transparencies thus made. Full information as to the formation of these wonderful figures, with examples, may be found in "Voice Figures," by Mrs. Watts Hughes, published by Hazell, Watson, and Viney, Ltd., price 2s.

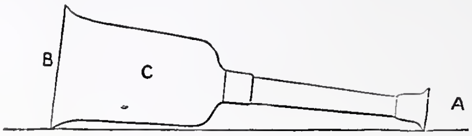


FIG. 1.

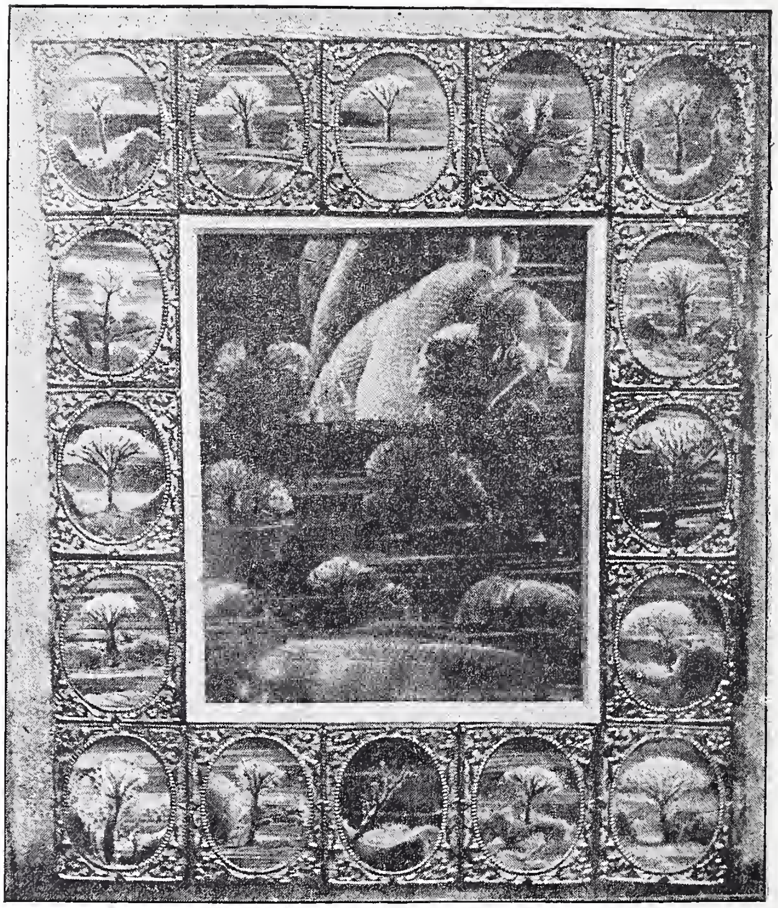


FIG. 2.

(*To be continued.*)

Polychrome Projections by means of Non-coloured Photographs.

By Leon Vidal.

Conference at the Photo. Club of Paris.

Inspired by suggestions published in 1869 by C. Cros and L. Ducos-du-Hauron, we have endeavoured to accomplish, in order to apply it to polychrome projections, the selection of colours through the aid of plates of given special sensitiveness. This application has not been made by anyone in France, at least publicly. Mr. C. Cros, in his paper entitled "Solution Générale du Problème de la Photographie des Couleurs" (1869, Gauthier-Villars), says:—

"You must not be surprised if I do not contribute accomplished results and if I do not seek to further my own ideas. I have not now, nor have I had, any means of realising it. To seek those means would imply a great expenditure of time and toil which would be followed by great labour to put them into practice.

"I do not say this to induce anyone to come to my aid. I have no great desire for it, having been obliged for a long time to do without those means; I have been accustomed to follow rather the general problems of science than particular accomplishments.

"The solutions I have found to the particular problem of the photography of colours are herewith published, and I have not reserved the commercial rights thereof. The idea goes to the public domain, and the special *savants* and the experimenters will not be hampered in their investigations."

It is clearly evident from the above declaration that Mr. C. Cros did not at all accomplish the idea published by him.

We were desirous of ascertaining whether Mr. L. Ducos-du-Hauron had, on his part, made a practical application of his idea of polychrome projections published in his pamphlet of 1869, entitled "Les Couleurs en Photographie, Solution du Problème" (Marion).

"The projections, of which I gave the principle in 1869 (he wrote to us from Algiers under date of 18th March, 1892), were, it is true, experimented upon and verified by myself; but, in order to produce them properly before the public, I lacked the apparatus and practical means of which I could avail myself."

It is therefore well established that Mr. L. Ducos-du-Hauron limited himself to experimenting on this sort of projection without producing them publicly. Since our paper on this method, read before the French Society of Photography at its session of March 4, 1892, illustrated with experiments, Mr. Lippmann says that he did, several years ago, accomplish some similiar experiments, but that they were neither published nor exhibited publicly.

It was on the 7th of February, 1892, during a conference given by us at the National Conservatory of Arts and Trades, that the first experiments of this class were produced. They were afterwards presented, on the 4th of March, at the Société Française de la Photographie, and, lastly, at the Photo. Club on the 8th of March following. The above facts have a special interest, and it was necessary therefore to establish them in as precise a manner as possible.

Outside of France, polychrome projections based on an identical principle, were made in Philadelphia by Mr. Ives, who has been working on the subject for several years, and in London by Mr. Scott.

The experiments made by Mr. Scott in this direction are less known than the labour of Mr. Ives. They have been published, not with the detail of their practical operation, but as to the principle on which they are based, and as to the nature of the results obtained.

After a careful perusal of all that has been published on this subject, we arrive at the conclusion that that which personally may belong to Mr. Ives is above all the special construction of the apparatuses of which he makes use.

His persistence in recognising that the Young and Helmholtz theory of colours is the best, and that it is an error to admit Brewster's, does not prove by any means that he has invented this theory. Maxwell, and all the *savants* of the period, have recognised that Young's theory is nearer to the truth than that of Brewster in considering the yellow, the red and blue as primary colours.

As to the effects due to the mixture of the radiations of different colours, sifted by diapositives obtained under certain conditions, they were foreseen and suggested since 1869 by Messrs. Cros and Ducos-du-Hauron. Where is, then, the part corresponding personally to Mr. Ives as to these effects?

Does the use of orthochromatic plates necessary to the selection of colours in the formation of negatives for said application, constitute a method belonging to Mr. Ives? Not at all. It was all suggested, and the invention of orthochromatism, whichever means he may employ, chlorophyl or other, does not belong to him.

What is due to him is to have been a skilful adaptor, of having first sought the realisation of ideas, principles, and processes published by others.

It is to have undertaken to popularise the knowledge of this most interesting application, of having sought and probably produced apparatus capable of rendering these experiments in a more perfect manner.

No one wishes to deprive him of this merit, and it is to be hoped that he is contented with that, as all other claims could be successfully challenged.

For our part, we only seek one thing, that is, to also popularise, within our sphere of action, a method which we believe is destined to render great services to the arts and sciences.

No more than our predecessor in this direction have we any right —nor do we by any means claim it—to be the inventor of one of the principles utilised. It may be that we seek, as does Mr. Ives, a mode of operation with the view of attaining the same end, which may seem to us more sure, more rapid and easier, but that is only a question of formulas. It may be, also, that in the construction of special apparatus he may put into operation an idea of his own, the product of his own studies, in which case he would be the owner of its special construction, but of nothing beyond that.

It is, besides, no mean thing to devote one's self to the task of putting a good idea into practice, and to become the promoter of its practical operation.

An invention not put into practice would become a sort of negation, if one or more promoters did not introduce it into the domain of useful things. That is why there is occasion to render justice to Mr. Ives for the persevering efforts he has made with a view of popularising the use of polychrome projections. That is why we believe we have rendered some services, on our part, in undertaking investigations and publications in that same direction.

We considered the above preamble necessary in order to make the distribution of roles as exact as possible. We shall now enter into the description of facts.

For the verification of the process of the synthesis of colours, suggested by Cros and Ducos-du-Hauron in 1869, we relied on the improvements recently brought forward in the preparation of orthochromatic plates, and it was when we noticed that by the aid of certain preparations we thought we could obtain a satisfactory selection of colours that we could venture to experiment in the way of polychrome projections. We had from the beginning to bring about the desired selection in such conditions that three negatives could represent, each one for itself, the sum total of different radiations of a polychrome subject. After many attempts, we arrived at a mode of operation which appeared to us, if not perfect, yet at least sufficient to proceed further and to verify the facts foreseen by the two above-mentioned inventors.

And, in effect, after an agreement with Mr. Molteni, who could place at our disposal a triple lantern, we were enabled to show before the large audience which filled the great amphitheatre of the National Conservatory of Arts and Trades, on February 7th, 1892, the magical effect produced by the projection of a bouquet of flowers with all its colours. After that, numerous subjects of all kinds, paintings, dead subjects, reproductions of views and landscapes, furnished a demonstration full of promise in support of the exactness of the synthetic means based on the employment of projections.

The complete work comprises the following different operations:

(1) The taking of negatives.
(2) The printing of dispositives.
(3) The projection by triple lantern through differently coloured media.

Three different negatives appear to be sufficient. On this subject there may be food for discussion, and the necessity of a fourth negative might be shown, but it is to be believed, until there is proof to the contrary, that we can do without it, and it is to be hoped that this possibility may be real, in view of the greater complications that this fourth factor would bring about, when it is already enough to have to do with three.

In order that each of these three negatives may have the proper analytical value that should belong to it, in view of the end to be attained, it is necessary that the three should represent perfectly the sum total of the three fundamental colours—that is, violet-blue, cyanine-green and orange-red, which, by their combinations, may reproduce all the variety of colours.

Every process conducive to a good selection of this kind, whether it be obtained on only one sensitive plate or on several plates, having different properties, may be considered as good, and nothing should be said in absolute against it.

In our first experiments there were employed three kinds of plates —that is, the so-called ordinary plate, an orthochromatic plate sensitive to yellow and to green, and, lastly, a plate sensitive to red and yellow.

The mediums interposed in front of each plate were in the same order—violet, red, and orange-yellow.

The time of exposure naturally varied with the colour of the medium interposed. Thus, taking a second as a unit, it was of one second for the ordinary plate, of three seconds for the plate sensitive to yellow, and of three minutes for the plate sensitive to red.

These figures are given to show the relation of one to another. It is evident that if the first exposure is only of 1-50th of a sec., the second will be of 3-50ths, and the third 180-50ths—that is, about three seconds. With other coloured media the relation would be changed.

The duration of these exposnres excludes, for the time being, instantaneous work, but it may be that we shall come to that by means of some improvements, and in that case the operation would be in the manner done by Mr. Marey with his photo-chronographic apparatus, only with less difficulties, as the total number of proofs to be obtained successively within a given fraction of a second will be reduced to three.

Once the negative is obtained, it is necessary to print the diapositives, either by contact or by any other manner. The plates which we have used in our experiments are Ilfords, and bear the mark "Alpha."

The printing of these positives naturally constitute a new series of three variable elements. The results may be modified infinitely according to the degrees of intensity of each diapositive. In this, as is the case with the taking of negatives, practice makes perfect. One soon becomes able to know the degree of intensity at which it is convenient to stop in developing.

The selection of coloured media, of course, requires especial attention, as it would not do to take haphazard any blue, red, or green.

The essential condition of this choice is that the projection of the three-colour discs on the screen should form a white on blending. On the other hand, it is necessary that the three colours selected should be as near as possible to the equivalent zone of the spectrum. The blue should have a tendency to violet; the green should be nearly the same as the cyanine-green of the spectrum; lastly, the red should be as near as possible to the orange red of the spectrum.

In certain cases, one may have recourse, with regard to some determined colour, to media giving other colourations than the regular ones.

The projecting apparatus should have three lenses, and three holders that can be independent one from the other, and should be so disposed that the reflection may be effected on the screen in the best and most rapid manner possible. A disposition which would allow the immediate and simultaneous reflection on the introduction in the lantern of the diapositive holders would evidently be the best. It seems that we ought to attain that, as that is a mere question of construction, and our manufacturers produce works much more difficult and complicated.

As to the light, it can be triple. Each one of the bodies of the lantern having its own, which allows the operator to regulate at will the intensity of each focus with regard to a desired effect; or it may be single, in which case the intensity, with regard to each objective, would be regulated by diaphragms of varied openings.

In order to give an idea as complete as possible of the results obtained by this method of projection, divers subjects, of entirely different nature, have been projected successively, and the assemblage have been able to notice the richness, the infinite variety, and the brilliancy of colours of the images projected. It was not necessary to enter into long explanations in the presence of so competent an audience thus enlightened, in order to make them appreciate the numerous and useful applications which art and science, and even manufacturers, may make of this precious method of reproducing, even if it be in a fugitive and temporary manner, the colours of nature, those of works of art, and of scientific subjects.

Thus they can be reclaimed, copied, shown and described to an entire audience, and even their recollections perpetuated, by keeping protected from all alterations, the chronogram; that is, the set of three diapositives, analytic depositaries of the effect of real colours, by which, through a simple process of synthesis one can at will restore the original colours, the same as at any desired moment we can reproduce on the phonogram the sound and the voice which were entrusted to it.

These applications are full of promise for the future, and we should not be, therefore, surprised at the interest which they excite wherever they are demonstrated to an intelligent public, anxious to realise all progress.

* * *

W. London Phot. Soc.—On the 27th ult. a lantern evening was held. Notwithstanding the absence of the picturesque series of slides of Mr. Leslie Selby, a very pleasant evening was spent contemplating those of Messrs. Whitear, Varden, Hodges, H. Selby, Lamley, Bilton, Scanlan, and Dixon.

Amidol for Lantern Slides.

AMIDOL is the latest novelty in developers, and a sample of it was recently submitted to us for experimental purposes with special reference to lantern work.

The first essays were made with a solution as recommended for negative work, namely:—

Amidol	1 part.
Sodium sulphite	10 parts.
Distilled water	100 „

This used full strength gave distinct fog, which rendered it utterly valueless. When diluted with eight parts of water it was found that there was just a slight veil, so slight as to be hardly noticeable on the screen. With an addition of bromide of the same strength as amidol, absolutely clean results were obtained. But a still better working developer was obtained by putting double the quantity of bromide.

The next experiments were for the production of warm tones, and for these three different brands of lantern plates were used, and exposures varying in ratio as 1, 2, 3, 4, 5, 6, 8, 10, 12, were given; the developer diluted each time and bromide added till the final formula used was, amidol 1, bromide 10, sodium sulphite 10, water 5,000. A chloride was also used in the place of bromide, but absolutely without any satisfactory result, nothing but sickly greenish tones could be obtained.

Experiments were then tried with a stock solution made as suggested by Mr. H. E. Davis ("Brit. Journ. Alm.," p. 657):—

Amidol	1 part.
Metabisulphite of potash	6 parts.
Distilled water	to 60 „

This was mixed with an accelerator composed of—

Bromide of ammonia	10 p.c. sol.	1 oz.
Carbonate of potash		¼ „
Water	to	3 „

in the proportion of—

Amidol solution	½ oz.
Accelerator	3 „

Four different brands of plates were tried, and at a distance of 12 in. from a No. 5 Bray burner, exposures varying from 5 sec. to 5 min. were given to the plates and the above developer used. There was no difficulty in obtaining rich sepia and brown tones, which in the lantern were very transparent in the shadows, and more harmonious than slides in black tones from the same negatives. We were unable to obtain purple tones in this way, but some incomplete experiments tended to show that it would be possible to obtain these by toning in a strongly alkaline sulphocyanide bath, after fixing and well washing.

* * *

Charitable Lantern Entertainment Society.—This Society which was inaugurated last October, for the purpose of giving free lantern entertainments to the inmates of our hospitals and similar institutions, has recently given entertainments at the following London hospitals:—November 15th, Temperance Hospital, Hampstead Road, N.W. (Women's Ward and Men's Ward); 26th, Victoria Hospital for Children, Chelsea (Girls' Ward); 30th, North-East London Hospital for Children, Hackney. December 3rd, Victoria Hospital for Children (Boys' Ward); 9th, Children's Hospital, Great Ormond Street; 12th, Paddington Infirmary (Female Ward); 15th, North-East Hospital for Children. In every case the entertainments were very successful and much appreciated; a request for another "show" later on usually following the conclusion of each. As a rule a little music is given between the different sets of slides. The Society gives thus early in its career two to four entertainments each week at London hospitals, and has dates fixed for infirmaries and ragged schools, and it is intended to generally extend the scheme in similar directions, but at present it is somewhat hampered in its work owing to lack of sufficient apparatus and workers. Two biunial lanterns and fittings, and oxygen gas bottles are urgently needed, as well as slides. In laying this first report of the Society before the public, it is hoped that those readers who sympathise with the objects of the Society will do what they can to assist it, either by becoming members or making a donation to the funds, or by the gift of apparatus or the loan of slides. The Joint Secretaries are Mr. B. Foulkes Winks, 2, Pretoria Avenue, Walthamstow, and Mr. F. Simmons, 158, Frances Terrace, Herne Hill, S.E., to either of whom communications should be addressed.

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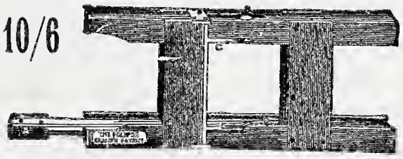

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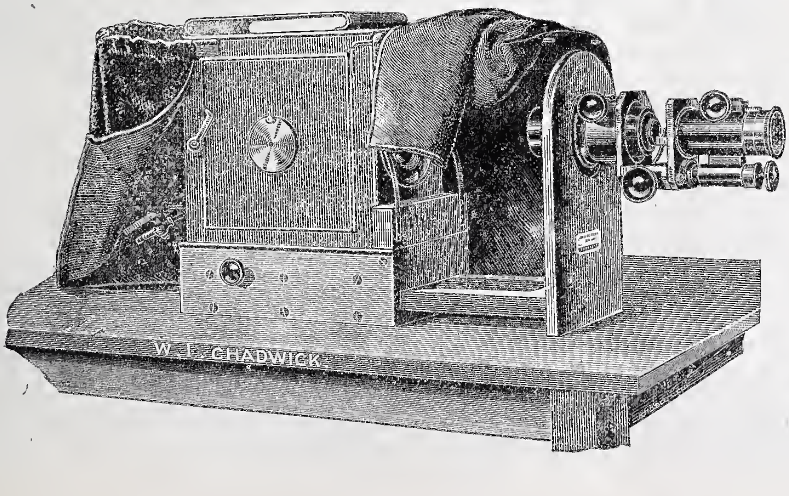

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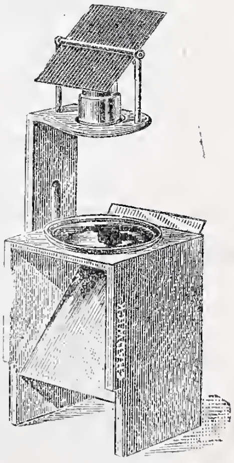

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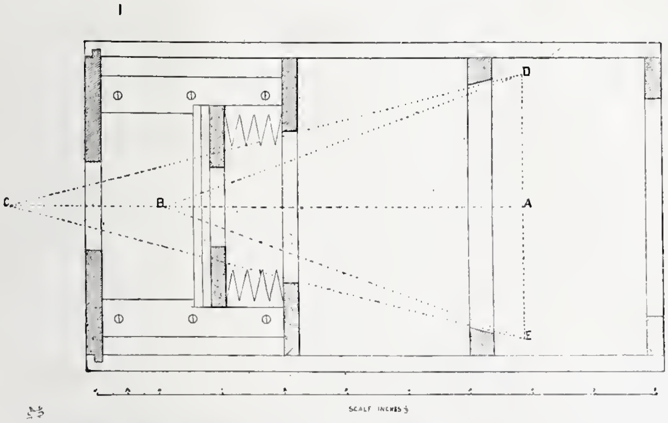
Construction of Twin-Lens Hand-Camera.—III.

By Enn. Ess.

The dimensions of the case for the twin-lens hand-camera, and the general arrangements of its interior structure having been obtained, the next step is to gain in detail the measurements of the several parts comprising the latter. These, as regards length and thickness, are fairly delineated in diagram 3. What is now required is their width.

For this purpose diagram 4, being a horizontal section through the picture chamber portion of the camera, is constructed on precisely the same principles as was diagram 3.

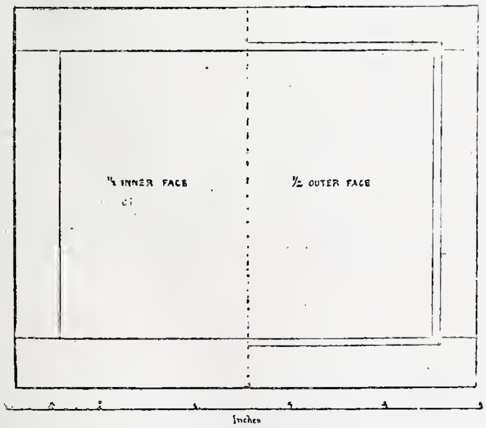
DIAGRAM IV



A line, A B, measuring $5\frac{3}{4}$ inches, that is the focal length of the lens, is laid out and extended $2\frac{1}{2}$ inches to point C. Through the point A a line is drawn at right angles to A B, on which are set off the points D E, equidistant from A, and $4\frac{1}{4}$ inches apart from each other. These points are joined with C, the lines so doing representing the extreme right and left rays of light that will touch the plate in the picture chamber. As already laid down, all internal structure must be kept free of these lines.

With diagrams 3 and 4 as guides, the several parts forming the interior structure, which alone are sectionally shaded in diagram 4, can now be laid out to scale.

FRAME AT BACK END OF PICTURE CHAMBER



The frame placed at the back end of the picture chamber is delineated in fig. 1, which gives a half plan of both outer and inner faces. The central or bellows frame is shown in fig. 2.

The face shown is that towards the picture and mirror chambers. At the bottom is shown the brass guide plate, through which the extension screw passes, the mill head of which works against it.

The lens board is given in fig. 3. This is shown as clamped down each side to prevent warping. The longitudinal and cross section of these parts are given in diagrams 3 and 4.

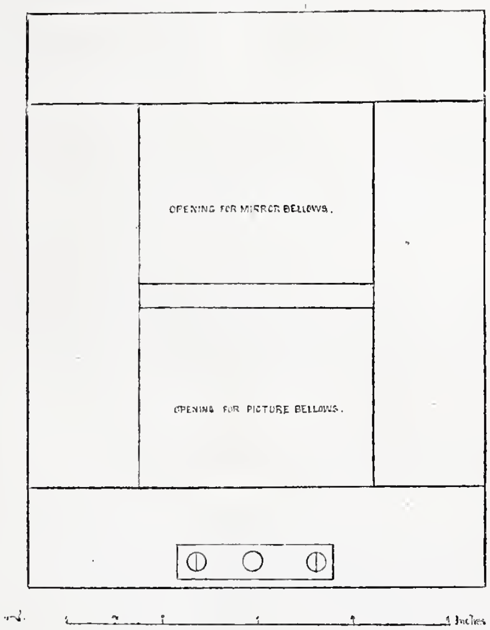
As all the diagrams and figures are drawn to scale, measurements are not entered thereon, as possible confusion might arise were there over-much crowding of figures and letters.

The cradle, to which the lens board is fixed, and upon which it travels when extension of focus becomes necessary, is shown in figs. 4, 5, and 6.

The position it holds with reference to the lens board is at once seen on reference to diagram 3, where it appears in section.

FIG. 2.

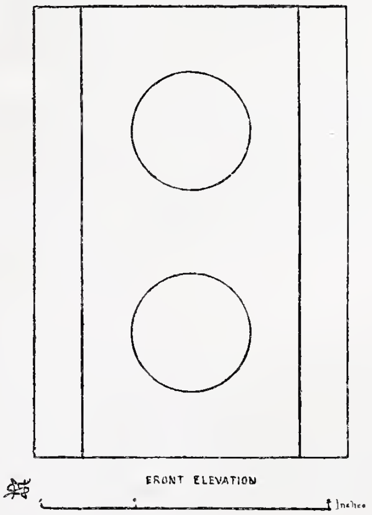
CENTRAL, OR BELLOWS FRAME.



The two grooves travel in guide pieces which are fixed to the bottom of the camera for this purpose, as shown in plan in diagram 4, and in fig. 7, which gives elevation of portion of front of camera, shutter withdrawn.

Two sets of bellows are needed—those for the mirror lens to measure 3 in. by $2\frac{3}{8}$ in., for the picture lens 3 in. by 3 in., outside size, with extension equal to $3\frac{1}{2}$ in.

LENS BOARD

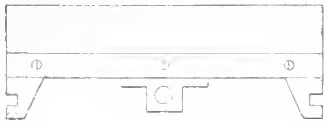


These bellows must be made with all the corners in each fold to be doubled back at top and bottom, and not, as is usually the case, alternately top and bottom and sides. In the case of the mirror bellows, the 3 in. measure is that of top and bottom.

The whole of top of the picture bellows must be carefully cut off from the rest, and the bottom of the other set slipped in, the sides of which must be inserted fold to fold with those of the picture bellows. When the mirror bellows have thus been telescoped within the other, so that the outside depth of the two together measures 4¼ in., the side folds of the two must be united by fish glue. By this contrivance, a duplex set of bellows is obtained, the division having all the pliability as regards extension and contraction possessed by the sides.

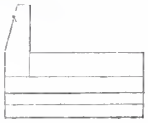
CRADLE.

FIG. 4



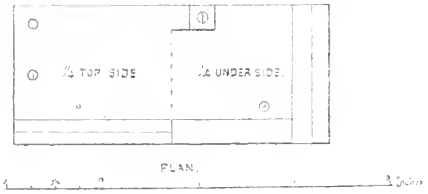
FRONT ELEVATION.

FIG: 5.



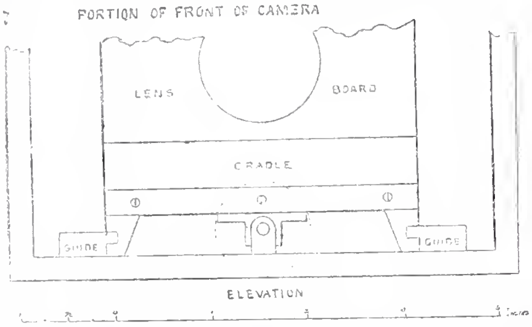
SIDE ELEVATION.

FIG: 6



PLAN.

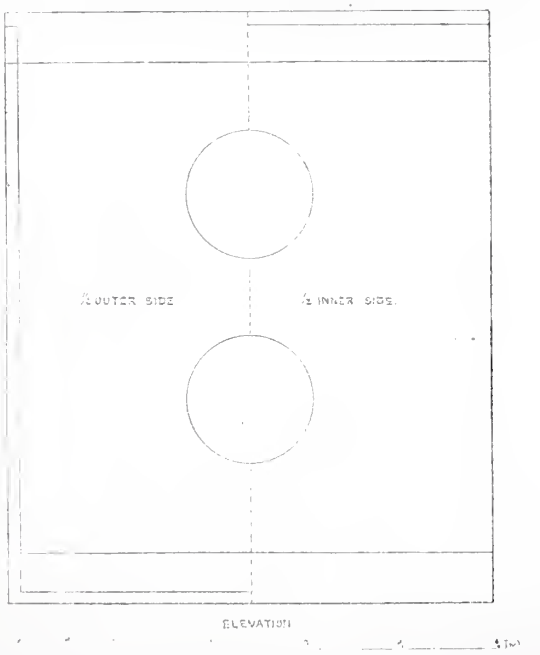
FIG. 7 PORTION OF FRONT OF CAMERA



ELEVATION

The bellows having been thus prepared, are fixed to the central frame of the camera and lens-board in the usual manner.

CAMERA SLIDING FRONT SHUTTER.



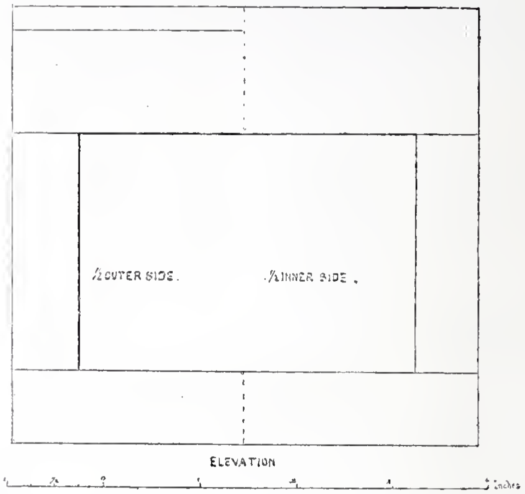
ELEVATION

The front of the camera is a sliding shutter pierced with two holes centered with the lenses, but of a slightly greater diameter, so permitting the lenses to pass through them, and thus allowing of their being racked out an inch without removal of the front. When racking out beyond that distance is required, it will be then necessary that the sliding shutter be first withdrawn.

Fig. 8 gives an elevation of the camera front; a longitudinal section is shown in diagram III, and a cross section in diagram IV.

The back end of the camera is a frame having an opening 3½ by 2½ in. This opening allows of the index, at the back of the changing-box, which registers the numbers of the plates that have been exposed, being seen, and also permits of an ordinary focussing screen being used when operating with the camera on a tripod, should it be preferred to the mirror at such times, the well for the changing-box becoming for the time being a focusing chamber.

FIG 9. FRAME FORMING BACK END OF CAMERA.



ELEVATION

Fig. 9 represents the elevation of the frame forming the back end of the camera, a longitudinal section of which is given in diagram III, and a cross section in diagram IV.

The premisses upon which the construction of the camera was started are that the equivalent focal length of the lenses was of 5¾ in. So far this is sufficiently near for the purpose, but, as is known, the measurement given as the equivalent focal length of a lens, though very closely approaching fact, is not absolutely true. It is therefore necessary, prior to finally fixing the lens board to the cradle, to practically test this point by placing a ground-glass screen in the changing-box, in register as though for exposure, removing the back of the box and focussing some fairly distant object on the screen. After which the measure of the distance between the bellows frame and the front edge of the lens board must be accurately taken, and the length of the cradle from its back edge to the inner face of the block in front made to coincide exactly therewith, and the lens board then fixed thereto. By so doing, the lenses when racked back as far as they can go will then be at their equivalent focal length from ground-glass and plate, and in the position for taking ordinary snap-shot pictures without further attention.

* * *

We have received a **capital tablet almanac** from the Albion Albumenising Company, of Bath Street, Glasgow. They also send us a supplementary catalogue and stocktaking sale list.

Errata.—Page 484, left-hand column, paragraph commencing "The exterior mesurement," should read, "from upper *and* lower ends." Same page, right-hand column, sixth line from top, should read, "in all 4⅞ in."

We have received the January number of Fallowfield's Remembrancer, the firse issue of the sixth year of publication. It is as full as ever of good things. Some rare bargains are offered. We note a new lantern-slide binder, "The Sershall," which strikes us as a very good idea, as does also a new double glass petroleum lamp.

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By JOHN A. HODGES.

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Photographic Lens Testing at Kew.

By MAJOR LEONARD DARWIN, R.E., M.P.

I HAVE been asked to give you some account of the system of testing photographic lenses which has recently been adopted at Kew; a system for the selection of which I was mainly responsible, though I was much aided by consultations with Captain Abney, and much assisted in my work by Mr. Whipple, the Superintendent of the Observatory. In approaching this subject, I must own that I feel myself in a difficulty. I have already written one exhaustive paper for the Royal Society, which is now being published *in extenso* by various photographic journals. This leaves me little new to say, and to-night I am obliged to repeat in substance much that I have said before; dwelling, however, with more force on the practical side of the question, and, with regret, referring those who wish to study the theory of the Kew methods in further detail to my Royal Society paper.

It should be stated at once that our object was not to devise a system for the scientific study of lenses, especially adapted to the requirements of the lens maker or the scientific investigator, but rather to endeavour to supply a want felt by the practical photographer; what the Kew Committee of the Royal Society desired was that anyone, on the payment of a small fee, should be able to obtain an authoritative certificate, by means of which a sound judgment could be formed as to whether a lens would or would not answer the purposes for which it was intended. The experience gained at Kew in the examination of other instruments was very favourable to the establishment of such a system, for the result has invariably been to increase the accuracy of the instruments in the market; instrument makers who are striving after perfection feel that there is more encouragement and advantage to be obtained from their endeavours if the results of any improvements they may introduce are likely to be subjected to some authoritative test; it may also be remarked that it is difficult, or impossible, for a maker to examine each article separately, and even the very best firms do not find it easy to keep to a uniform standard of excellence. To what extent these remarks, which certainly appear to be true as regards other instruments, will be found to apply to photographic lenses, can only be told after the system has been established for some little time, but there seems to be no reason to expect this manufacture to prove to be an exception to the rule.

Bearing in mind the general idea with which this system was established, let us place ourselves in the position of anyone who, for example, is doubtful as to the purchase of a lens, and determines to settle the point by sending it to Kew for examination:—We should first write to the Superintendent of the Kew Observatory, Richmond, Surrey, asking for a "Form of Application" for photographic lenses; the lens should then be delivered at the Kew Observatory, Richmond, or to the Secretary of the Horological Institute, Northampton Square, E.C., or to Mr. R. Strachan, of the Meteorological Office, 63, Victoria Street, Westminster, and at the same time the "Form" should be filled in, and returned by post to Kew; besides giving certain information by means of which the lens may be identified, we should see that we are required to state in the form of application whether it is for landscape, plan, or portrait work, and also for what sized plates it is intended to be used.

With regard to this latter point—the declaration of the size of the plate—a word or two of explanation may be necessary. Probably at first sight we should be disposed to consider that it would be more satisfactory if this declaration were not required, and if the Kew examination were made to determine quite independently what plate was properly covered by the lens in question. This was my own view when I commenced the investigation of the subject, but it was not long before I perceived that the authorities at Kew could not be expected to supply this information. The difficulty would have been very great of assigning a rigid meaning to the expression "properly covered," and unless clearly defined, it could not well be used; but it is still more important to note that the same lens which, for example, would, with sufficient exposure, give a good picture over a 15 by 12 plate if well stopped down, might, with full aperture, fail to cover satisfactorily a $6\frac{1}{2}$ by $8\frac{1}{2}$ plate. How could the observer at Kew say in this instance which sized plate was "properly covered"? It was therefore felt imperatively necessary that each lens should be judged with reference to a plate of named size; but, on payment of a small additional fee, a lens may be entered for examination with reference to plates of two or more sizes.

After the lens has been forwarded to its destination, after the form has been filled in, and after the fee has been paid, we should in due time have the lens returned to us, accompanied with a certificate showing the result of the examination. The following is an example of the form of certificate after completion:—

[We insert here the results obtained in the examination of a lens submitted by us to Kew.—*Editor "A.P."*]

KEW OBSERVATORY, RICHMOND, SURREY.

Certificate of Examination of a Photographic Lens.

1. Number on lens, W M I. Registered No. —.
2. Description, rapid rectilinear. Diameter $1\frac{5}{8}$ inches.
3. Maker's name. ——
4. Size of plate for which the lens is to be examined, 6 5 inches by 4·75 inches.
5. Number of external reflecting surfaces, 4.
6. Centering in mount, bad.
7. Visible defects—such as striæ, veins, feathers, etc., front combination rather granulated.
8. Flare spot, none.
9. Effective aperture of stops.

Number engraved on stop.	Effective aperture· Inches.	*f* number	C I. No.*
No. 8	1·37	*f*/8	$\frac{2}{3}$
No. 11	1·12	*f*/10	1
No. 16	0 78	*f*/14 5	2
No. 22	0 60	*f*/19	4
No. 32	0·44	*f*/26	7
No. 44	0·29	*f*/39	15
No. 64	0·16	*f*/71	50

* C.I. International Congress System.

10. Angle of cone of illumination with largest stop = 64 deg., giving a circular image on the plate of * 13 7 in. diameter.

Angle of cone outside which the aperture begins to be eclipsed, with stop C.I., No. 4 = 42 deg., giving a circular image on the plate of $8\frac{1}{2}$ in diameter.

Diagonal of the plate = 8 in., requiring a field of 39 deg.

Stop C.I. No. 4 is the largest stop of which the whole opening can be seen from the whole of the plate.

11. Principal focal length, * = 11·4 in. Back focus, or length from the principal focus to the nearest point on the surface of the lenses = 10 in.

12. Curvature of the field, or of the principal focus surface. After focussing* the plate at its centre, movement necessary to bring it into focus for an image 1 in. from its centre = 0 00 in.

Ditto for an object 2 in. from the centre = 0·0 in.
" " 3 " " " = 0·4 "
" " 4 " " " = 0·10 in.

13 Definition at the centre with the largest stop, bad. C.I. stop No. 4 gives fair definition over the whole of a $6\frac{1}{2}$ in. by $4\frac{3}{4}$ in plate.

General Remark.—A moderate rapid medium angle lens must be well stopped down to give even fair definition over a $6\frac{1}{2} \times 4\frac{3}{4}$ plate.—W. HUGO, Observer.

Date of issue, —— G. M. WHIPPLE, Superintendent.

NOTE.—The following is the scale of terms used: excellent, good, fair, indifferent, bad.

To avoid any ambiguity in the wording of the certificate, more especially in the general remarks at the end, it was found advisable to adopt definitions for certain expressions which are now generally used without any precise signification. In order, therefore, to read accurately the results of the Kew examination, it is necessary to note the following conventional meanings:—

A narrow angle lens means one covering effectively not more than 35 deg.

A medium angle means one covering effectively between 35 and 55 deg.

A wide angle means one covering effectively between 55 and 75 deg.

An extra wide angle means one covering effectively more than 75 deg.

The C.I. No. of a stop means the number which indicates the intensity of illumination produced by it on the plate according to the system proposed at the International Photographic Congress of Paris of 1889. (The practical rule for finding the C.I. number of a stop is to divide the square of the principal focal length of the lens by one hundred times the square of the diameter of the effective aperture of the stop.)

The largest normal stop means the largest stop which can be used with the lens so as to produce definition up to a certain standard of excellence all over a plate of given size, the objects of which the images are seen being all equally distant.

---

* Read before the P.S.G.B.

* The lens is focussed on a very distant object.

A slow lens means one of which the largest normal stop has a less diameter than has C.I. stop No. 6.

A moderately rapid lens is one of which the largest normal stop is C.I. No. 6, or larger than that size, and less than C.I. No. 2.

A rapid lens is one of which the largest normal stop is C.I. No. 2, or larger than that size, and less than C.I. No. 2/3.

An extra rapid lens is one of which the largest normal stop is C.I. No. 2/3, or larger than that size.

(*To be continued.*)

* * *

Exposure in Lantern-Slide Making.

Among the many branches of the photographic art which are open to the amateur during the winter season, there are few more fascinating and satisfactory in results than the making of lantern slides. And the fascination is not confined to the worker alone, for if the the subjects are properly selected, and the slides well made, his friends also can participate in his pleasures, as he takes them with him on his holiday tramps in the country, his trip among the mountains, or his yachting cruise along the coast, and his successes and adventures will be more fully appreciated and enjoyed when seen magnified upon the brilliant screen than when handed around in the form of prints or transparencies.

Although the making of slides has come to be most widely practised, and in the societies is almost universal, it is remarkable how few are the makers of really first-class slides, and the failure appears largely due to a single error in the really simple process of manipulation. It has been the good fortune of the writer to be present, assisting in operating the lantern, at the testing of the slides presented for selection for the American Lantern Slide Interchange for three years, on each of which occasions over a thousand slides were thrown on the screen, and careful personal observation and study of this great number of slides from every part of the country, contributed by over a dozen societies, show quite conclusively that the prevailing error has been in the exposure of the slides.

The principles and practice of the exposure and development of a negative apply only to a limited degree in lantern slide making, as can be readily proved by throwing on the screen a first-class brilliant negative. The result will be surprising in harshness and the violence of the contrasts, and a slide made from the same negative, and possessing the same character and density, will give similar results. Where then must we look for a remedy, and one which will give us not only the brilliancy but also the softness so essential to a first-class lantern slide? The reply is simply prolonged exposure—an exposure that would be considered ruinous if applied to a negative.

With such an exposure a modification in the system of development, and of the standard of judging the progress of the development, is necessary. Fortunately, however, this is simple and readily grasped by anyone capable of making a negative fit for slide work. As to development either pyro or hydroquinone are suitable, or the old faithful iron, while for general work eikonogen is the least satisfactory of all, as the cold colour it produces is unsatisfactory in most of cases. I think the majority of our best workers use hydroquinone, and it is certainly unexcelled for the purpose, as there is less liability of staining from prolonged development than with pyro. Probably the best developer for slides consists of hydroquinone, 100 grains; sulphite of soda, 400 grains; carbonate of potash 400 grains, and 20 ounces of water. It is well also to have at hand a strong solution of sulphite, say of 10 grains to the dram, which may be used as a preservative in cases of slow development, although it must be borne in mind that an excess of sulphite tends to produce cold tones in the slide. It must also be remembered that hydroquinone ceases to act at about 56 deg. Fahr., and the best results are obtained at about 60 to 65 deg. With these stock solutions, and unlimited patience, you can produce slides of any quality desired.

Now try a few experiments. Take a negative that you know by experience will give a good slide, and make an exposure about fifty per cent. longer than has been your custom, and pour over it a developer compounded of one ounce of the above solution and three ounces of water. Don't hurry it, but let it take its time. Ten minutes will hardly bring it up to the right density, but it will get there eventually. The result will probably be a soft black tone, but not lacking in brilliancy or clearness, and if the development has not been forced, there should be no sign of fogginess. Take a second plate and give it double your customary exposure, and mix your developer say one part of the stock solution to four of water and a little bromide. The development will now require a much longer time and must be carried further than before, as, after the manner of all over-exposed plates, it will lose considerably in fixing. Don't worry if the image looks thick and muddy, and of a dirty brown tinge; go on with the development until you can hardly see through it in the half-tones. As long as it does not fog—and it will not if you do not force it—it is all right. Another thing, do not let the appearance of the back of the plate influence your judgment in the least. That sign fails in an over-exposed plate, and I doubt if it is of any value, whatever the exposure. On fixing, this plate will have a more or less of a brown tone, which in many cases is very effective on the screen.

It is worth the trouble and expense to make other exposures of still greater duration in order to ascertain how far the process can be carried, in each case using a weak developer well restrained, the development being correspondingly prolonged in each case.

By the system here advocated any tone from a rich black to a decided reddish-brown may be obtained, together with perfect detail and gradation, and all of the utmost softness and brilliancy, the perfection of the results depending, as in all branches of photographic work, on experience, judgment, and skill.

Some directions for slide making tell us to regulate the exposure to suit the developer. I wish the propounder of this doctrine would tell us how to do it—if he can—as it would settle many doubtful questions and greatly simplify photography generally. Every negative will vary from another in printing density; lighting is a variable quantity; no two emulsions are alike; different lots of chemicals used in compounding developers will vary in quality, and the temperature of your developer is a matter of moment. How all of these elements are to be estimated and co-related in advance is beyond my imagination, not to say comprehension. I can, however, conceive the practical method of modifying the developer according to the indications of the plate as it progresses, and this method is the one followed by some of our best slide makers, men who have made a thorough study of the theory, chemistry, and practice of photography, and their slides are good enough to take prizes in any competition in the world.

In regard to plates I may say that all of our American brands are good, though differing one from another in sensitiveness, and having individual peculiarities; but I will note the fact, indicated by a somewhat limited observation, that the Cramer plates seem to require a more rapid development than the others to obtain the best results.

I have here treated exclusively of dry plates slides, as being the ones generally used, and I believe it is only a matter of a short time before progress in methods of handling by the average worker, and in theories of judgment of results, will seal the verdict that the dry plate surpasses the wet plate, except possibly for special purposes.—W. F. H.—"*Photo American.*"

* * *

Single Lime-light Lanterns for Lecture Purposes.

By D. W. Noakes.

(*Continued from page* 389, *vol.* xvi.)

From single oil-light lanterns we turn to single lime-light lanterns, which nowadays are quite as easily manipulated, the only real difference being cost of oil versus cost of gas, limes, etc. Almost any oil lantern, whether of the old Argand type or the mineral oil, admits of conversion to a lime-light lantern. The lamp is taken out, and in the same grooves used for the lamp is inserted a tray with an upright rod, on which the jet is clamped.

By means of clamping the jet higher or lower on the vertical rod, or by sliding the tray to or from the condenser, the correct position is found for the light. The opening in the top of the instrument through which the chimney of oil lamp protruded is fitted with a short cowl or rose top, and the alteration is complete.

Of late years coal-gas has found its way even into remote villages and the spirit jet has gradually died out. The jet most in favour for single lecture lanterns seems to be the blow-through gas jet, though for high-class science lectures and microscopic projection the more powerful mixed jet should be used.

From the ease with which an oil lantern can be altered to lime-light, it will be seen that altering the radiant does not necessarily alter the construction of the body, and the remarks as to body and optical parts in my former article equally apply here, the conditions being but slightly altered. But inasmuch as with a blow-through jet we have about three times as much power in the radiant, we can attempt greater things, and instruments for special work, such as projection in shadow of scientific experiments work, etc., can with advantage have special shapes. I have designed several of these, and though all of these have been capable of projecting transparencies in the ordinary way, their shapes, stages, and accessory parts varied a great deal in order to suit the special work for which they were intended.

The present practice of lanternists living near those centres where compressed oxygen is obtainable is to buy and use it in that very handy and portable form, and if wear and tear of retort, purifier, bag, and pressure boards are fully considered, it is, in the long run, cheaper than home-made gas, and a great deal of time is saved. No weights for gas bag are necessary, the weight of cylinder is less than gas bag and board, and in use is far less bulky.

In choosing size of cylinder we shall be influenced by the conditions and frequency of use.

If our lectures are frequent or in one fixed place, without doubt a large cylinder is most economical, whilst for lectures less frequent and far apart a smaller cylinder is more portable.

In the first case I usually advise a 40 feet, weighing when full about 44 lbs. It is of a size and weight that is not difficult to handle, and if purchased is recharged with oxygen at 2½d. per cubic foot, and is economical in carriage, and is especially saving in residues. I will explain.

The gas consumption per hour of a powerful blow-through jet giving the maximum result is from four to five cubic feet, and lantern exhibitions vary from one to two hours. As it is quite easy to lose compressed gas instead of using it, most operators like to feel they have over and above the actual amount necessary, and usually purchase not less than ten feet for one evening. The consequence is that all tubes being in good order and no gas wasted, but all used through the jet, a residue of two, three, or even more feet may be left, and as this is not allowed for is practically lost. It is easy to see that such residue would in a 40 ft. cylinder accumulate and supply gas for five exhibitions averaging each eight feet consumption, whilst if separate 10 ft. cylinders had been used, five of them would have been necessary, with extra carriages and extra charge per cubic foot of gas.

In bags *versus* cylinders many *pros* and *cons* have to be considered, but the chief point is cost. A proper cylinder outfit consists of cylinder, governor, and gauge.

The cylinder holds the gas, the governor governs its exit, and the gauge tells us the pressure, and thereby the contents.

The cylinder can be hired for a week free of cost, but the gas costs 4d. in loaned cylinders as against 3d. in the customer's own.

If cylinders are purchased, they should be of solid drawn steel, tested to 3,000 lbs., and purchased from some reliable house.

The old-fashioned heavy welded bottles are now almost worthless; apart from their extra weight, they are suitable only for gas, compressed to 40 instead of 120 atmospheres.

The governor is a piece of mechanism that needs to be of the very best quality, as its task is an ardnous one. There are several types of automatic regulators, varying in price.

The function of an automatic governor is to act as watchman at the outlet of the cylinder, and when gas is required, to turn it on, when less is required to turn it partly off, and when none is required to turn it completely off; and if the governor is in good working order, the valve on cylinder can be fully opened, and if connected to the jet by the usual flexible tube and jet cock turned completely off, the pressure on the outlet of the governor is reduced below that necessary to blow off the flexible tube. With a single lantern the need of an automatic governor is not nearly so great as with a dissolving pair of lanterns, as whilst the single instrument is in use a constant continuous stream of oxygen is required, and less expensive means can be used. The non-automatic regulator of which I am the inventor will answer admirably for this purpose—it is attached to the cylinder valve, which is opened fully, and then by means of a very fine adjustment, the actual quantity needed is allowed to pass; but with this kind of regulator it is necessary to keep fully open the jet cock, and make the necessary adjustment at the regulator attached to the cylinder.

The gauge is an article which many manage to do without, but it is very uncertain work for the operator when he has a cylinder given to him which may be full or nearly empty; he is often tempted in this way to husband the gas too closely, and not get all the light possible; whereas if he had a gauge he would know whether he had ample for the evening.

It is so easy for gas to be inadvertently lost from a cylinder, that for the operator's peace of mind he should see the cylinder gauged; and houses supplying oxygen will always do this for clients if their pockets will not admit of the purchase of this necessary piece of apparatus. Recently, a gauge has been introduced at the small figure of 15s., and is sufficiently correct for the purpose intended.

If this sum cannot be afforded, use may be made of the fact that 12 cubic feet of oxygen weigh very nearly 1 lb., and if we have means of weighing the cylinder either when full or empty its contents can be found by a simple rule of three sum.

Assuming that we possess a lantern, cylinder of gas, governor, and jet, tubing, and limes, we will go out and give an exhibition—and at the outset, timid lanternist, calm your fears—if you will only exercise the same amount of common sense that is necessary to turn out and light the gas in your drawing-room, you will run no risk. You may manage to blow off your tubes, put out your light, make a hiss or a roar, give a bad show and discomfort your audience, but I will defy you to do any serious damage. I consider the greatest risk the tyro runs at the present moment is to have his gas turned on and escaping into the lantern, and the body might hold sufficient gas to cause a miniature explosion when he placed a light to it. This also would occur in the aforesaid drawing-room if the gas was left turned on sufficiently long. The logical deduction therefore is that the drawing room is as dangerous. The fact is, under the present conditions of working, lime light is as safe as ordinary gas light. The old bogey, "danger of explosion," has exploded himself, and the learned scientific operator "who continually threw out hints of difficulty and danger has gone the way of all wrong 'uns." The element of danger that did at one time exist has now disappeared, and some will, I have no doubt, hardly credit me when I say that even under the old conditions when danger was present it would be only in consequence of the most culpable negligence—about on a par with the trained gasfitter who locates a big leak with a lighted taper. A careful analysis of troubles that have occurred and numerous experiments conducted by myself proves conclusively to my mind that danger can only exist by deliberately charging our gas reservoirs with two kinds of gas. (Perhaps on one occasion the explosive property of gas was a factor.)

This we can do, if we use a bag, by partly filling with oxygen, and then filling up with hydrogen. But with a cylinder all is different. The usual flexible tube will not convey gas from one cylinder to the other even if there are 120 atmospheres in one and only one in the other. The only way to get gas from one to the other is to employ an engineer to make special right and left handed connections and fittings, and no doubt with ingenuity and outlay the desired dangerous conditions might be brought about, but not otherwise. The great difficulty in a short article is to say what is most useful, and leave unsaid the many side issues that crop up; but I receive so many queries headed "Isn't it dangerous?" that I wish to emphasize the freedom from all danger of explosion in the sense it has hitherto been accepted.

Calm and cool, there we arrive at our lecture room, and our first anxiety is about the screen. Some day I hope to find an opaque screen of suitable dimensions in every lecture hall. Two screw eyes screwed in the roof and a couple of cords settle this matter. No elevator frame needed—an elevator is a bugbear. I sell them, but take my advice given out of business, don't buy. Having utilized the side cords to stretch our screen to, we set up the lantern. Our objective is 6 in. focus, and we can show a 10 ft. disc, consequently as twice three are six, we go twice times ten, or 20 ft. away. Our lantern is put up, and jet roughly placed in position. Now take cylinder and blow out the valve seating; if dirt or particles of matter are left on it, it will be difficult to make a tight joint; now connect governor by means of the differential screw, by placing finger on outlet and opening the cylinder valve. We can listen to hear if joint is tight. Perhaps there is a small leak round valve spindle; if so, the gland nut must be tightened down, or by turning the valve spindle to a new position it may stop the leak.

Having made all joints tight, we connect by means of the flexible tube to jet, and also connect hydrogen side to nearest gas branch; a lime is put on the lime-pin, and the hydrogen turned on to warm the lime. Then the oxygen is slowly admitted, and whilst doing it revolve the lime, warming it all over its surface. First comes a little air, then pure oxygen, and the result is intense light inside the lantern, though possibly none on the screen, but by raising or lowering, or by adjusting the jet to or from the condenser, we find a place where the disc is well illuminated. Now put in a slide, and focus till quite sharp; this will give the working position of objective. Then remove the slide and readjust light till disc is evenly illuminated and perfectly flat; to test for flatness of field use a hymn slide. It is not generally known that a hymn slide will show that disc is not flat, although it is apparently so to the eye. Please remember, position of light interferes with the defining power of objectives. Having made all adjustments, turn off oxygen at the cylinder, let the governors slowly empty, and then turn off hydrogen at the gas branch till exhibition is about to commence. It is very handy to have a tap in hydrogen service close to the lantern, and it is a good dodge to leave a little hydrogen burning in the lantern, keeping it warm and the lenses from steaming. I have left a great deal unsaid, but space will not admit, and I will conclude by pointing out what a long experience has shown to be the most common failures.

Gas is often lost by imperfectly closing cylinder valve—some go very stiff, others quite easy. To test if cylinder is completely closed pour a little water in valve nozzle; if valve is leaking, bubbles of gas will rise through the water.

If the governor is automatic, oftentimes the cylinder valve is insufficiently opened to work it. Please note, the governor wants a certain amount of gas over and above that consumed by the lantern in order to work its own mechanism.

Gas is often lost in consequence of inferior flexible tube. Some kinds go quite porons. On the oxygen side of the jet only special tube should be used.

The position of the lime with a mixed jet is quite close to the nozzle, but in a blow-through jet it is half an inch away. This varies with different jets, and it is best when lantern is set up to watch the screen and notice where the lime gives the most brilliant disc.

If compressed gas is used. Use hard limes only, we continually read in the text-books, use soft limes for blow-through jets. All very well for the old bag pressures, but the pressure from a good governor is far above the bag pressure, and limes are far more easily worn away; as one of our "nibs" has it, "Bad limes break good condensers."

Reviews.

The Microscope: its Construction and Management. Including Technique, Photo-micrography, and the Past and Future of the Microscope. By Dr. Henri van Heurck. Translated by Wynne E. Baxter. Published by Crosby Lockwood and Son.

Probably there is no one who is more competent to write on the microscope and its uses than Dr. Van Heurck, and his work has long been recognised as authoritative. The volume before us may practically be considered to be a new book altogether, so much has been added. An introductory chapter on elementary optics, written in clear, concise language, opens the work, and then we have Abbe's theory of microscopical vision and experiments on the same. The first book treats of the microscope generally and in particular, and is one of the most valuable in the work to the student. In the third book the use of the microscope is considered, and the various stands and objectives of the principal English and foreign makers are passed in critical review, and as Dr. van Heurck is a perfectly unbiassed expert, his criticisms will be extremely valuable. Photo-micrography claims, of course, very great attention, and the information given is very complete and reliable. Directions for the preparation of objects, and a very good list of microscopical works and magazines, and notes on the past and future history of the microscope, with a very complete index and vocabulary—form one of the finest works on the subject of microscopy.

The book is extremely well printed, very free from errors, and handsomely bound and illustrated, and Mr. Wynne Baxter has done his work in a most careful and painstaking manner. As an authority this book should be consulted by every worker.

Exhibitions.

SOCIETY.	ENTRIES CLOSE.	OPENS.	CLOSES.	ADDRESS OF SECRETARY.
		1893.		
Ryde, Isle of Wight	—	Jan. 4	Jan. 5	
West London	—	Jan. 10	—	Lionel C. Bennett, 30, Blandford Road, Bedford Park, W.
Toronto (Canada) Camera Club	Jan. 8	Jan. 12	Jan. 14	
Louth	—	Jan. 26	—	S. Francis Clarke, L.D.S., 8, Upgate, Louth.
Cleveland Camera Club ...	Jan. 25	Feb. 1	—	J. J. Hallam, 11, Amber St., Saltburn-by-the-Sea.
The Durham City Camera Club	Feb. 3	Feb. 14	—	R. Hauxwell, The Avenue, Durham.
Torquay Photo. Soc.... ...	Feb. 3	Feb. 14	Feb. 18	H. C. Howell, Nutley, Torquay.
Woolwich Polytechnic Phot. Soc.	—	Feb. 16	Feb. 19	W. Dawes, 145, Chesnut Rd., Plumstead, Woolwich.
Holborn	—	Feb. 18	Feb. 2	F. J. Cobb, 3, Albion Grove, Barnsbury. N.
Fillebrook Atheneum ..	Feb. 20	Mar. 1	Mar 2	J. W. Spurgeon, 1, Drayton Villas, Leytonstone.
Forfar, N.B.	—	March		
Philadelphia (U.S.A.) Phot. Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com. 1 601, Callowhill St. Philadelphia. U.S.A.

Societies' Notes.

THE Holborn Camera Club will hold their annual exhibition and conversazione at Anderton's Hotel on February 20. Two bronze medals and a special president's prize will be offered for competition

THE Fillebrook Athenæum Photographic Society will hold the second annual exhibition on Wednesday and Thursday, March 1 and 2, at the Fillebrook Lecture Hall, Leytonstone, Essex. The judges, Messrs. F. P. Cembrano, jun., W. L. Colls, and John A. Hodges, will have fourteen medals (six silver and eight bronze) placed at their disposal. Entries close February 18, and forms and full particulars may be had from J. W. Spurgeon, Drayton Road, Leytonstone, Essex. The following are the rules:—(1) The competition is open to amateurs and professionals alike. (2) There will be no division into classes, with the exception named in Rule 3. (3) Photographs which have gained awards in any open exhibition or competition previous to February 24, 1893, or reproductions of the same, will not be eligible to compete with the general exhibits, but will be placed in a separate class. (4) Exhibits may be by any process, and any number may be entered. Lantern slides must be in sets of six; more than one set may be entered. All photographs must be mounted, and, if possible, framed. (5) The whole production of the photograph—including composition, exposure, development, retouching (which must be declared), printing, toning, and mounting—must be solely the work of the exhibitor. (6) An entrance fee of one shilling will be charged to each competitor, who must fill up the annexed form, and send it, with the entrance fee, to the Secretary, so as to reach him not later than Monday, February 20. (7) Each exhibit must bear on the back (or on the box in the case of slides) a label, giving title of picture and name of competitor; the latter should not appear on the front. (8) Exhibits sent by rail or carrier should be addressed, carriage prepaid, to Mr. J. W. Spurgeon, Fillebrook Lecture Hall, Fairlop Road, Leytonstone, London, N.E., and must arrive not later than Friday, February 24. Carriage both ways must be paid by exhibitor. Pictures may be brought to the Hall on February 24, between eight and ten p.m., and may be fetched away on Monday, March 6, after eight p.m.

THE West London Photographic Society will hold a conversazione and exhibition of members' work on 10th and 11th inst., at the School of Arts, Bedford Park, Chiswick.

SOCIETIES' FIXTURES.

Jan. 5.—HULL.—"New Developers, etc.," Mr. Howlett, F.R.C.S.
„ 6.—BRIGHTON AND SUSSEX (Nat. Hist.). — "Stereoscopic Photography," Mr. A. H. Webling.
„ 6.—CROYDON (Micro.).—"The Capabilities of Platinotype," Mr. S. G. B. Wollaston.
„ 9.—RICHMOND.—Conversazione at the Theatre Royal.
„ 9.—PUTNEY.—"Toning Gelatino-Chloride Papers," Lecture and Demonstration, Mr. Gotz.
„ 10.—NEWCASTLE-ON-TYNE.—"Platinotype Printing," S. G. B. Wollaston.
„ 10.—LOUTH.—A Paper.
„ 10.—EAST LONDON.—Musical and Social Evening.
„ 10.—HOVE.—Demonstration, "Enlarging," Mr. G. Foxall.
„ 10.—HACKNEY.—"Some Contributions to Artistic Effect," Mr. A. Horsley Hinton.
„ 11.—THE PHOTO CLUB.—Members' Open Night.
„ 11.—LIVERPOOL (Cam. Club).—"Art in Relation to Photography," Mr. F. Anyon.
„ 11.—WAKEFIELD. — "Hand and other Cameras, Tripods, etc."
„ 11.—LEAMINGTON.—Demonstration: "Developing Plates of Unknown Exposures," by members under professional guidance.
„ 11.—ELIZABETHAN.—Conversazione.
„ 12.—LIVERPOOL (A. P. A.).—"Bromide Printing," Mr. J. H. Welch.
„ 12.—BIRMINGHAM (Photo. Soc.).—Annual Meeting.
„ 13.—HALIFAX.—Social Evening.
„ 13.—OLDHAM.—Annual Soiree and Dance.

* * *

Liverpool (Camera Club).—An ordinary meeting was held on the 28th ult., Dr. C. F. Webb, the President, in the chair. Demonstration on enlarging was given by Mr. W. A. Stuart, who made all preparation to ensure success, bringing his own home-made apparatus. He made his exposure with magnesium ribbon, and developed with iron, and produced a first-class enlargement.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume.*
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer questions by post.
6. In answering Queries, correspondents are requested to mention, in every instance the *number and full title of the query* referred to.

QUERIES.

5905. **Gelatine.** — Will anybody experienced in emulsion making, and having a knowledge of the various qualities of the different gelatines offered in the market, be kind enough to let me know which of the photographic gelatines they consider the most transparent and free from yellow colour; and also which gelatine seems to have the highest melting point—that is, supposing the percentage of water to be about constant? Doubtless the hardest gelatines will have the highest melting points.—H. D. TAYLOR.

5906. **Camera Difficulty.**—I possess a very good half-plate camera similar to Watson's Acme. Unfortunately, the front is too small to carry a heavy portrait lens which I want to use. Could any kind reader give me an advice in this respect where I could exchange it against a square-bellows camera, such as Lancaster's International, or any other?—PERPLEX.

5907. **Kosmos Hand-Camera.**—I have bought one of the Kosmos hand-cameras. Will any reader who has had experience with same tell me what plates are suitable, also developer, exposure, etc.? Can really good snap-shots be taken with this instrument?—EGRUPS

5908. **Focus Power.**—Would any experienced reader be good enough to tellme if Itake a portrait with a lens of 10½ in. focus and one with a lens of 8 in. focus, where the difference would be, supposing, of course, that when using an 8 in. focus the camera be placed nearer to the sitter, so as to give same size picture as the other lens; and as a rule when lenses of short focus are used to take large heads, is there not a strain in the finished pictures, and are the effects so pleasing as if the portraits had been taken with lenses of longer focus; is there any difference in sharpness at all? Can good large heads be taken with Dallmeyer's 3 D lens, direct from life, would heads of about 2½ in. diameter taken with that lens be perfectly sharp and pleasing?—FRA.

5909. **Leather Cover.**—I have made myself a hand-camera; where could I have it covered with leather in the same way as Ross's twin lens hand-camera, and as well?—FRA.

Correspondents not seeing their queries inserted are requested to look for the same under "Editorial."

QUERIES UNANSWERED.

Nov. 25th.—Nos. 5880, 5881.
Dec. 2nd.—Nos. 5886, 5890.
,, 9th.—No. 5894.
,, 16th.—No. 5900.
,, 23rd.—Nos. 5902, 5903.
,, 39th.—No. 5904.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT

J. H. S.—You do not state with what paper you wish to work. Rich warm browns may be obtained on albumenised paper by washing the prints well, and placing them in a solution of salt and water about 1 in 20 for five minutes, and then toning in the following bath (Mawson's), which should be at a temperature of 70 deg. F.

Stock Solution.

Borax	330 gr.
Acetate of soda	180 ,,
Bicarbonate of soda	90 ,,
Distilled water	20 oz.

Toning Bath.

Stock solution..	10 dram.
Chloride of gold	1 gr.
Water to	10 oz

Mix two hours before use. Brown tones on chloride papers may also be obtained with this bath, but it must be used cold. In each case toning must only be carried till the lightest shadows have lost their red tone on looking through. Brown tones may be obtained on bromide paper by developing, fixing, and washing as usual, and then toning with

Ferridcyanide of potassium	20 gr.
Uranium nitrate..	20 ,,
Distilled water	4 oz.
Glacial acetic acid	1 dram

till the desired tone is reached, then washing slightly and drying. Platinotype paper can be obtained to give very rich sepia tones, and carbon prints may also be obtained in several shades of brown and sepia.

J. GROSE, JUN.—(1) The advantages of the turntable are that it is always fixed ready for use and allows the camera to be quickly and easily slung round if desired, and there is also some saving of weight. (2) For touring and cycling we should recommend a taper form of bellows, because this form of camera is rather lighter. Your other query we will answer by post.

E P. J.—(1) The fault may be in the plates or in the shutter or lens. By using a larger lens, say whole-plate, you would not have to stop down so much, but on the other hand your shutter must work quicker on account of the increased focal length. The shutter may be one which has a low efficiency, that is, does not admit of much light. One of the best shutters for really rapid work is the focal plane. If you will write us privately letting us know what exactly you work with, we will write you. (2) Over-exposure is probably the fault in your lantern-slide making—intensification should be considered a make-shift only. (3) Yes, the isochromatic plates would be more rapid in a dull or yellow light. (4) Rough-surface papers artistically used are preferred. (5) Well, this is a difficult query to answer; the angle included is so small that it would necessitate getting a long way off, but in artistic hands it would doubtless give good results.

G. F. SHARLAND.—Many thanks; its the same old association, and the same old swindle.

P. B. BROOMHALL.—We will try and make a good negative for you and let you have it. We will also try and remove the water varnish with ammonia for you.

DENSE.—We have so often explained the meaning of these terms, but still we are glad to enlighten you.

Amidol	20 parts or	20 gr.
Sodium sulphite ..	200 ,, ,,	200 ,,
Water	1000 ,, ,,	2¼ oz.

Ten per cent. solutions mean solutions made by dissolving one part of salt in sufficient water to make ten parts, thus

Bromide of potash..	1 oz.
Distilled water up to	10 ,,

Dissolve the bromide in 8 oz. of water, and then add sufficient water to make 10 oz.

F. J. G.—(1) A little too heavy on the right, and wants clouds. (2) Printed too deep, and too much foreground. (3) Printed too deep (4) Too patchy in the top. (5) Charming little bit; on rough paper it would be equal to any in our competitions. (6) Over-printed and over-toned, and not artistic. Do you want prints back?

H. H.—All three prints are over-toned. Nos. 2 and 3 are printed about enough, but No. 1 wants shading a little during printing in the dark central portion.

HY. E TREW —We know of no cards produced as you say, but will make enquiries.

LANCET —(1) To copy in black and white you must use either Mawson and Swan's or England's photo-mechanical plates, or else Edwards's special transparency plates. The exposure will be necessarily rather long, because the plates are very slow, but over-exposure should be avoided. The following developer is the best—

A.

Pyrogallol	60 gr.
Metabisulphite of potash	60 ,,
Ammonium bromide	60 ,,
Distilled water	20 oz.

B.

Liquor ammonia	2½ drams.
Distilled water	20 oz.

Use in equal parts, and continue the development as long as there is no sign of blocking up of the lines. It is far better to stop development early and intensify than continue development till the lines block. (2) The intensifier you want is Edwards' old iodide intensifier. Dissolve 60 grains of bichloride of mercury in 8 oz. of water, add to this gradually sufficient iodide of potassium (from 140 to 150 grains) to nearly dissolve the red precipitate first formed, then add 120 gr. of hypo. Immerse the plate in the solution thus formed till dense enough, and then place in a weak hypo bath for a few seconds, wash well and dry.

OSCAR.—Letter by post.

A. P S.—Black doeskin is the best leather—to be obtained from almost any leather merchant. Perhaps one of the firms who sell hand-cameras might let you have a bag ready made.

ALPHA.—Under-exposure and fearful forcing with strong accelerator is the cause of the iridescent fog on your plates.

MONA.—Your work is excellent, and some of the prints we cannot find fault with, except the one prevailing fault, that is flatness and want of brilliancy. If they were printed on the rough paper which you name under green glass you would have some prints equal to some and superior to many sent in to our competitions. Nos. 4, 5, 6, 7, and 8 are the best of the small ones. The larger ones are also excellent, though still all flat. You are over-toning rather. Nos. 10 and 15 want more clouds, as do the two unnumbered ones. Try your luck. Pick out the best, and be careful in printing and toning, and we shall hope to see you get a medal soon.

"Holidays with the Camera" Competition.

PRINTS have been received from :—

Keighley, A.	Keighley
Stainsthorpe, W. N., Dr.... ...	Saltburn-by-the-Sea
Forman, H. S., sen.	Louth
Tourist, E.	Folkestone
Atkins, R., Dr.	Waterford
Moore, C. B.	Philadelphia, U.S A.
Post, W. B....	New York, U.S.A.
Muff, F. B.	Ilkley
Legge, C. J....	Birkenhead
Brook, T. M.	Manchester
Forman, E. H.	Louth
Jeffrys, A. J.	Chelmsford
Ashton, E. R.	Tunbridge Wells
Lamley, G.	London, W.C.
Court Cole, C.	Oxford
Mason, J. W. B.	London, N.W.
Goodwillie, H.	Dublin
Spencer, H. G. H....	S. Saviour's, Jersey
Meynell, H....	Stoke-on-Trent
Rudge, H. N.	London, W.
Irving H.	Darwen
Lysaght, J. D.	Queenstown
Tunstall, E. M.	Kirby
Whittard, W. H.	London, S.W.
Stieglitz, A....	New York
Fawsett, C....	Durham
Fawsett, E. G.	Louth
Perkins, T.	Shaftesbury
D'Aeth, C. C. H.	Wincanton
Dart, W. B....	Torrington
Timmins, C. A.	Runcorn
Wain, E. B....	——

Sale and Exchange.

RULES.

CHARGE.—**Twelve** *words or less for* **Fourpence.** *Every additional* **three** *words,* **one penny.** *The name and address of the sender* **must be paid for.** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* **one word** *compound words count as* **two** *words.)*

DEPOSITS.—*The money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

PAYMENTS *should be made in Postal Orders or* **Postage Stamps.**

ADDRESS.—*All advertisements (which can be received up to* **Tuesday** *mid-day) and other communications having reference to the "Sale and Exchange" column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C."*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge 1s.*

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* **Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.**

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* **carriage forward.**

REPORTING.—*Apparatus may be sent to the* EDITOR, AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E C., who will report upon the apparatus to the* **buyer** *for a minimum fee of* **2s. 6d.**, *or a commission of* **2½ per cent.**, *upon the sale price of the apparatus.*

Burnisher.—Burnisher, by Fallowfield, 9 in. roller, 12s. 6d.—A. P. C., 102, Church Street, Luton, Beds.

Cameras, Lenses, etc.—Key camera, lens, view finder, six double backs, in perfect condition, price £5 10s.—H. F., Camera Club, Charing Cross Road, London.

Hand-Cameras, etc.—Quarter plate hand-camera, fitted R.R. lens, 12s. 6d.; specimen print sent.—Norrington, 12, Augusta Gardens, Folkestone.

Lantern Apparatus.—Pair (Newton's) four-wick lamps, equal new, 30s., or sell singly.—Iliff, 11, Martineau Street, Birmingham.

Lenses, etc.—Lenses, unused, bargains. Taylor's M.A.R., accurately paired for stereos. 4 in. focus, £5; do., R.V., 6 in. focus, iris, £2 18s. 6d.; Ross' patent concentric, 3 in. focus, £7 3s.; Ross' 4 in. do., £7 3s.; Wray's 11 in. focus, R.R., iris, £4 9s. 6d.; Wray's 5½ in., iris, £2 15s.; above warranted and carriage paid; specially paired by makers.—No. 359, office of this paper, 1, Creed Lane, E.C.

Oxygen Cylinder to hold 20 ft, tested by Brin, with nipple, union, and key, cost 43s. 6d., take 25s.—Fuller, Chemist, Norwich.

Sets.—For sale, or exchange for Optimus 10 by 8 euryscope lens, a Stereoscopic Company's whole-plate square-bellows camera, best quality, three double dark slides, tripod, solid leather case, three printing frames, dishes, cutting shapes, ruby lamp, velvet cloth, £5 10s., or with whole-plate wide-angle lens and Phantom shutter to fit, £8 10s.—Geo. Potts, Carlyle Road, Chesterton, Cambridge.

Half-plate set (never used), complete in box, with chemicals, trays, tripod, Optimus lens, etc., original price, £5 15s., will take £3 10s. for prompt sale; also a quarter-plate set, same as above, original price, 36s., will take 25s.—Address, Downing, 442, Wandsworth Road, London, S.W.

Lancaster's International half-plate, two dark slides, stand, and splendid aluminium lens, Thornton-Pickard shutter and case, £5, or offers; also Lancaster first quality enlarging lantern, 6 in. condenser, achromatic, with rack and pinion movement, only been used once, £5 10s., or offers.—Temperton, 59, Corporation Street, Manchester.

Underwood's double extension half-plate exhibition camera, three slides, tripod, landscape lens, works perfectly, cost 5 guineas, selling at 50s.; also Lancaster's 12 by 10 Multum-in-Parvo enlarging apparatus, with special carrier for camera, price 20s., cost 35s.; perfect condition.—White, Vicarage, Stonehouse, Glos.

7½ by 5 McKellen's triple patent camera and three dark slides, with Dallmeyer's rapid rectilinear 8½ by 6½, perfect in every respect, in waterproof canvas case, and tripod to suit turntable in camera.—C. W., 99, Hatton Garden, London, E.C.

12 by 10 Optimus camera, square, long focus, with three double dark slides, fitted with 12 by 10 Optimus R.R. lens, 12 by 10 wide-angle lens, in waterproof canvas case, with tripod stand, as good as new.—C. W., 99, Hatton Garden, London, E.C.

WANTED

Enlarging Apparatus.—Wanted, enlarging apparatus, 10 by 8 or larger, must be cheap, cash.—A. Story, 1, Eton Road, Southsea.

Hughes' 5 by 4 bijou enlarging lantern.—Micklewood, 5, St. Michael's Terrace, Plymouth.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Hand Cameras.—Houghton's Automatic Hand-camera, guaranteed as new, rapid rectilinear, rotating stops, Thornton-Pickard shutter, carries twelve quarter-plates, fine camera, £4 10s. No. 5 folding Kodak, carries fifty-four films, rapid rectilinear lens and shutter, extending leather bellows, covered morocco, finder, etc, £9 9s., cost £13 13s.; Luzo hand-camera by Robinson, Regent Street, 100 films, rapid rectilinear lenses, shutter, finder, in leather case, as new, £2 12s. 6d.; Optimus Minimus hand-camera, quarter-plate, for twelve plates, Optimus Euryscope lens, roller blind, shutter, two finders, bag changing, covered morocco, finest condition, £4 17s 6d.; Talmer hand-camera, carries twelve quarter-plates, fine portrait or view lens, shutter, finder, bag changing, etc., finest condition, 47s. 6d.; Key hand-camera, by Platinotype Company, rapid rectilinear lens, shutter and six slides, size quarter-plate, finest order, £4 12s. 6d.; C Daylight Kodak, rapid rectilinear lens, rotating stops, shutter finder, etc., covered morocco, carries 24 films, quite new, £3 15s.; No. 4 Kodak, as new, size 5 by 4, carries 100 films, fine rapid rectilinear lens, instantaneous shutter, in solid leather case, £7 7s.; Optimus Magazine, very finest order, Optimus rapid rectilinear lens, carries twelve quarter-plates, roller blind, shutter, focussing adjustment, £5 5s; Kodak No. 1, best R.R. lens, carries 100 films, best order, in leather case, 40s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54 Lime Street, corner of Leadenhall Street, City (late Goy's Medium) Second hand apparatus bought, sold, or taken in exchange Inspection invited.

Skates! Skates!! Skates!!!—Thousands to select from. All the best patterns in stock. 50 per cent. less than usual prices. Write for lists free, City Sale and Exchange, as above.

Bargains in Cameras and Sets.—10 by 8 camera fitted all latest improvements, back and front extension, for wide-angle pictures, leather bellows, reversing back, rising and falling front, two double slides, grand condition, take £6 10s. lot; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three fold stand and case, lot as new, £11 5s.; whole-plate Spanish mahogany camera, by Mason, Glasgow, leather bellows, single extension, wide angle movement, rising, falling and cross fronts, reversing, three double slides, changing box for twelve plates, fine Euryscope lens, Waterhouse stops, Newman shutter and folding stand, grand set, £7 17s. 6d.; half-plate camera by Houghton, Holborn, double extension, wide-angle movement, rising and falling front, leather bellows, etc., rapid rectilinear lens, iris stops, three double slides, three-fold stand and case, as new, £5 10s. warranted; half-plate Spanish mahogany camera, by Lonsdale, Leeds, wide angle movement, double extension, leather bellows, etc., rapid rectilinear lens, Waterhouse stops, double dark slide, and folding stand, £4 10s.; Lancaster's half-plate 1892 instantograph camera, all latest improvements double extension, leather bellows, etc., double slide, quarter carrier, very fine rapid rectilinear lens, and folding stand, set complete, 75s.; half-plate camera, by Percy Lund, back extension, conical leather bellows, three double slides, rapid rectilinear lens, shutter, folding stand, and case, as new, take £4 10s.; quarter-plate instantograph camera, lens, iris stops, double slide, and folding stand, 27s. 6d.; quarter-plate Le Merveilleux set, by Lancaster, complete, 15s.; quarter-plate extending camera, best order, good lens, two double hook-form slides, and folding stand, 17s. 6d All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Skates! Skates!! Skates!!!—Thousands to select from. All the best patterns in stock. 50 per cent. less than usual prices. Write for special lists free. City Sale and Exchange, as above.

Bargains in Lenses.—Dallmeyer's 2 B portrait lens, finest condition, Waterhouse stops, rack focussing, take £6 17s 6d., cost £13 13s.; Optimus No. 3 B portrait lens by Perken, Son and Rayment, as new, Waterhouse stops, rack focussing, to cover whole-plate, take £6 15s.; Optimus portable symmetrical, size 9 by 7, rotating stops, covers well, works *f*/11, as new, 65s.; 9 by 7 Optimus rapid Euryscope lens, Waterhouse stops, moveable hood, grand definition, as new, £5 5s.; whole plate portrait lens, Waterhouse stops, rack focussing, covers well, as new, 65s.; whole-plate rapid rectilinear, by Parker, Waterhouse stops, fine definition, best condition, 37s. 6d.; half-plate Lancaster's rectigraph lens, thorough order, covers well, Waterhouse stops, take 32s. 6d.; half-plate Lancaster Instantograph lenses, iris stops, and instantaneous shutter, 15s.; half-plate Ross' rapid symmetrical lens, as new, fine definition, Waterhouse stops, £3 17s. 6d.; Ross' No. 2 portable symmetrical, rotating stops, 4 in. focus, finest order, 42s.; Shew's C. D. V. portrait lens, rack focus, Waterhouse stops, finest condition, 17s. 6d.; Optimus quarter-plate portrait lens, rack focussing, Waterhouse stops, quite new, 21s.; 5 by 4 Optimus rapid rectilinear, by Perken, Son, and Rayment, Waterhouse stops, 27s. 6d.; Swift 5 by 4 wide-angle rectilinear, 5 in focus, rotating stops, 32s. 6d.; ¼-plate hand-camera lens, by Laverne, rapid rectilinear, adjustable focus 15s., quite new. All above lenses are warranted as described.—On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Every description of apparatus bought, sold, or taken in exchange.

Skates! Skates!! Skates!!!—Thousands to select from. All the best patterns in stock. 50 per cent. less than usual prices. Write for lists free, City Sale and Exchange, as above.

Magic Lanterns and Slides. — Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens' which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

Regulators and Gauges.—Great reduction, in price. Either can now be had of Walter Tyler for 14s. each. The largest stock of gas cylinders in England. Best seamless steel, tested and valved, and all sizes at very low prices.

Slides from Negatives and Pictures.—Walter Tyler manufactures and colours slides on the premises, thus ensuring speedy delivery, and prices are most moderate.—Walter Tyler, 48, Waterloo Road, London.

Biunial Lanterns.—If you are in want of a really good biunial lantern, perfect in every respect, call and see Walter Tyler's entire brass fronted, mahogany-bodied, lined with Russian iron, and fitted with new best quality lenses, and sold at a most moderate price. The top lantern will take a 4-wick lamp. These are great bargains.—Walter Tyler, 48, Waterloo Road, London.

Hire Department is now perfect. Largest and best collection of slides in the world; over 200,000 always in stock. Temperance, travels, Scripture, educational, comic, tales, etc. Cheaper than any other house, no extra charge for coloured slides or effects. Special terms for large quantities.—Walter Tyler, 48, Waterloo Road, London

Lanterns and Slides.—If you wish to hire, purchase, or exchange, you cannot possibly do better than go to Walter Tyler, who makes this business a specialite, and you will thus save dealer's and all intermediate profits.—Walter Tyler, 48, Waterloo Road, London.

Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; several whole and half-plate for sale, cheap

The Marvellous Pamphengos. — Finest oil-lighted lantern, great improvements, equals limelight, stood the test of over fourteen years against all imitations. Elegant brass fronts, high-class lenses, from £2 10s. each.

Magic Lanterns, Magic Lanterns.—Largest assortment in the world, cheapest and best.

The Universal Lantern, 4 in. double condensers, portrait front lenses, rack and pinion, four-wick lamp, in case, £1 7s. 6d.

The Docwra Triple Prize Medal, highest award, supplied to Dr. H. Grattan Guinness, Madame Adelina Patti, and the Royal Polytechnic, etc.

The Malden Triple; supplied to B. J. Malden, Esq.; grand results.

A Magnificent Triple Lantern; latest improvements, four sets of high class double combination lenses that slide in solid rack mounts, £38, cost £70.

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The AMATEUR PHOTOGRAPHER

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No. 432. Vol XVII.] FRIDAY, JANUARY 13, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 *till* 5 *o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from* 10 *till* 1 *o'clock.*

Our Views.—Peak and Dale Slides—A Definite Aim in Photography—Two Artists' Work - Jeffrey's Books — Against-the-Light Effects—Clouds—Rough Papers—Good Workmanship—Two Sides of Photography—W. London Exhibition—Our Climate—Artists as Judges—The Fault-Finder—The Brush—Dr. Emerson at the P.S.G.B.—Burne-Jones' Pictures—The Medal Question—Ghost Photography—Mr. Tulloch and Breadth—Winter Work—E. London Soc.—Medals—Philadelphia Exhibition—Chicago Exhibition—Fillebrook Athenæum Exhibition.

Letters.—Packing Plates and Plates (J. W. S.)—Mounting P.O.P. (Cockburn)—A Correction (Chapman Jones)—A Correction (Hurter and Driffield)—Backed Plates *v.* More Emulsion (Professional)—Moonlight Pictures (Huggins)—Rational Development (Dibdin).

Articles.—Photography in a Flat Country—Construction of Twin Lens Hand-Camera (Enn Ess)—Photographic Failures, and how to Ensure Them (Davis)—The A B C of the Lantern.

Exhibitions.—W. London—Derby.

Reviews.—Photographischer Kalendar—La Photographie Nocturne—La Bibliotheque du Photographie.

Apparatus.—Wormald's Fibre Slabs—Butcher's Mounting.

Soc. Meetings.—Croydon Camera—Croydon Micro.—Dorset—Harringay—Kensington and Bayswater—Lewisham—N. London—Oxford—Rochester—Rotherham—Sheffield—Tunbridge Wells—W. Kent—York.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the EDITOR, AMATEUR PHOTOGRAPHER, 1, CREED LANE, LUDGATE HILL, LONDON, E.C. *(All communications should reach the Editor on Tuesday.)*

TERMS OF SUBSCRIPTION—

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, SALE AND EXCHANGE Advertisements, or other business matters for the AMATEUR PHOTOGRAPHER are to be addressed to the Publishers, HAZELL, WATSON, AND VINEY, LD., 1, CREED LANE, LUDGATE HILL, LONDON, E.C. SALE AND EXCHANGE *Advertisements (at the charge of* ***Three Words for One Penny****) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Lantern-Slide Competition. — Latest day, January 14th. — *Prizes:* **Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, AMATEUR PHOTOGRAPHER, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the AMATEUR PHOTOGRAPHER Supplement, January 28th, 1893.)**

Peak and Dale Slides.—We have still some dates vacant for which this lecture may be booked. It consists of 110 lantern slides with connective reading descriptive of the various beauty spots in the neighbourhood of Haddon, Chatsworth, Matlock, and the Peak, taking Ambergate as the starting-point. As announced previously, we send these free of charge, the society borrowing same paying carriage.

◆

We have repeatedly pointed out the desirability of a definite and consistent aim in photographic picture making, especially for those who have time at command and are not obliged to wait for certain fixed holidays from official or business duties, though to nearly everyone something of the kind that we suggest is possible. Instead of using the camera on an infinite variety of scenes, hill and valley, sea-shore and forest, the following up of a definite and carefully preconsidered series would be very much more beneficial to the photographer, and the sort of connection between each of the pictures would probably make them more interesting and certainly more instructive to the spectator.

◆

Such a course has been adopted with admirable result by two painter artists, Messrs. W. E. Norton and H. G. Moon, and their work is now exhibited at the gallery of Mr. Gooden, in Pall Mall, under the title "The Story of a Year Round an Old Country House." The varied surroundings and aspects of an old manor house near East Grinstead throughout the different seasons of the year is a sufficiently suggestive theme for any amount of pictorial work, and whatever the painter's advantages may be, the photographer, working seriously and in sympathy with his subject, would often be in a position to secure effects and subjects which would be all but impossible, or, at least, attended with great labour, to the painter.

◆

Most landscape photographers are also keen and enthusiastic admirers of nature, and we should imagine one of the late Richard Jeffrey's charming books might form a fitting guide, if not an actual model, for a series of illustrations of rustic scenes and country life. The photographs, if of moderate merit, might be mounted and bound into book form with possibly interspersed leaves of carefully executed descriptive manuscript. Put a good sound binding or cover outside the whole, and we should have a delightful addition to the objects which lay on the library or boudoir table for our friends and visitors to amuse themselves. But better than this, it would have given us a definite and consecutive aim during the season's work, and in proportion to the thoroughness with which it was carried out should we have acquired a complete knowledge of locality and circumstance.

In looking over an average collection of lantern slides or prints it is often very noticeable that of the skies or cloud effects which have been utilised quite 90 per cent. are "against-the-light effects." Of course, this is not difficult to account for. Clouds and often landscape are generally more strikingly attractive when viewed with our face to the source of light; and especially with clouds the prettiest and most effective contrasts and arrangements are found when the clouds are between us and the quarter from whence the light comes. Still, it should be remembered that Nature has beauties all round, and we shall often have landscape views very desirable as pictures taken with the operator's back towards the sun; in fact, that very position a long while ago was believed to be the only desirable or possible one.

◆

Clouds when immediately opposite the light rarely possess sufficient contrast to please the average photographer, and are usually more ill-defined and quieter in effect than when seen against the light. Nevertheless, a good cloud effect opposite the sun is, however, sometimes witnessed, and, because of its rarity, should always be secured when opportunity offers.

◆

With increased use of rough-surfaced printing papers and more widespread admiration for out-of-focus pictures, there is a growing danger of slovenly and careless work, and for this reason alone we are often sorry to find clever sketchy work medalled at Society exhibitions because of the dangerous model such a photograph may be to younger and less advanced camera users.

◆

We would strongly condemn the practice of attempting what is termed an artistic or impressionist style before a complete mastery of technique has been obtained, always so long as that technique had been distinctly recognised as *only a means to an end.* The blind and ignorant use of those methods which masters of the art employ, with the hope and purpose of getting similar results, is a contemptible proceeding, and will never result in anything more than possibly a chance success, and that even will be open to suspicion.

◆

Hence we are of opinion that the distinctions frequently given of late to sketchy, painter-like work, whilst well merited and very consoling to those who hope much for the artistic future of photography, must be looked upon as dangerous examples which will inevitably prompt the mere prize-hunter to imitate a certain style and manner without catching the motive, and even if some success be achieved it must be of an ephemeral and unstable kind.

◆

Good workmanship, accompanied by intelligent observation and study, may accomplish something of art, or at least a suggestion of nature, but artistic taste and imagination without some technical skill cannot be depended upon to effect anything. The possession of good taste, a feeling for beauty, and artistic instinct is necessary no doubt, in the first place; and where this is apparently deficient, cultivation may develop something akin to it, but in addition to this the patient mastery of technical matters is essential, and the true artist will show himself in proportion as he keeps his means and methods in subordination to the expression of his idea.

◆

It is the old question — the two sides of photography. Handle them as you will, you cannot drive them abreast, one or the other will lead, according to the sympathies of the driver, and you have a *mixed science* or a *possible fine art* accordingly.

◆

"Exhibition now on!" At the School of Art, Bedford Park, the West London Photographic Society have their exhibition of members' work, and a very creditable little show it is. No classes or restrictions, and three gentlemen of reputed artistic leanings are invited to award medals where distinction is thought desirable. Under such circumstances the judges can take a real pleasure in their work, and we know many will join us in expression of approval.

◆

With a fickle climate it is difficult for writer and reader to be in direct sympathy as regards the condition of affairs outside our doors, for frost-bound nature deep in snow with one may mean thaw, fog and drizzling rain with the other, only when everyone has been talking of the prospects of snow pictures we think it well to point out that snow is not usually most picturesque when fresh fallen, smooth, and unsullied; it covers each inequality of the ground, and hides the works of modern civilisation, hillock, rock, and bank, with the same soft mantle. The country road, pathway, field, brook, bank, and river side are more picturesque, in snow time, when thaw has set in, and cart wheels, and the imprints of heavy hoofs or human feet have chiselled and broken the surface, and dark earth, pools of water, or occasional tufts of grass and weed make contrast and variety. It may not be pleasant walking, but luxury and indulgence never did achieve much that was worth the having.

◆

A good deal is often said as to the desirability of having artists, not necessarily photographers, to judge our photographic exhibitions. We have at times vehemently applauded such an arrangement, and in theory at least still approve. However, the best founded notions meet with rebuff sometimes, and so it is just now. We have a painter-artist of renown who we know practises photography to some extent (this is no imaginary character—we are quoting from actual experience). We asked our painter friend's candid opinion on a collection of photographs which he had considered rather above the average, and with what result? Why, notwithstanding his personal knowledge and interest in practical photography, it is evident that he will not seriously regard any artistic photograph as a work of art, but at best in the light of a clever piece of trickery and imitation.

◆

To begin with, he condemns utterly any hand work on negative or print, and will extol an imperfect cloud if it be on the same negative as the view, rather than a correct and truthfully rendered sky or clouds printed from a second negative, *if he can by any means find out that* two negatives have been employed. All this shows that our painter-artist, though admiring and to some extent believing in the artistic aim of photography, judges it still as a craft, and regarding the perfection of photography merely in the light of an auxiliary to his painting, forgets or does not care to consider the possibility of its becoming an art itself—an end, and not only a means to an end.

◆

We recount the foregoing experience in some sense as a caution to societies, and others who, seriously desirous of progressing artistically, pin their hopes to the good opinion and support of artists, but who may be disappointed.

◆

Thus we recently met with an artist, also a painter, who, when looking at a "pinhole" work, asserted (and he ought to have known better, for he used a camera himself), and was prepared to bet—we forget how much—that the broad masses of light and shade in the foreground were the result of brush work. He was mistaken, as we afterwards proved, but, such is our generosity, we did not claim the bet. The average artist who can wield pencil or brush would not unnaturally have *all* brushwork or *all pure photography*. He cannot sympathise with the photographer who makes proper and discreet use of such helps as his imperfect materials may demand. We can.

* * *

The periodical notice card of the P. S. G. B. announces that on March 14th Dr. P. H. Emerson will discourse before that astute and learned body on "Naturalistic Photography." That arch-liar "rumour" has it that, although Dr. Emerson has professedly and practically done with photography, he has yet something startling, some *coup*, which will, at least, prove that, with all his weaknesses, he has ability of no ordinary kind. We have described "rumour" as a perpetrator of falsehood, and so it is when it says that Dr. Emerson's promised communication will be a recantation of a renunciation which not very long since considerably stirred the photographic world.

* * *

Amongst the art notes for the month—such as the Millbank-Tate Gallery, the probable vacation of the Dudley Gallery by the New English Art Club, and the laudable proposal to make a presentation to the Slade School professor of seventeen years' standing, M. Legros—is the notice of a collection of the works of Mr. Burne-Jones at the New Gallery now being held. Let opinion of this well-known painter's work be what it may, there is no denying that Mr. Burne-Jones holds a unique and enviable position in modern art. All who are interested in pictorial art should see this interesting collection.

* * *

Contemporaneously with Mr. Welford's articles on exhibition management, etc., we are now promised in Mr. Hepworth's journal a series of articles from the pen of Mr. H. P. Robinson. In Chapter I. he says:—"The withholding of medals at the late Tunbridge Wells Exhibition (an event which is fast rising to historical dignity), whether wise or otherwise, has done good by flashing the search-light of discussion on to what many think is one of our weakest spots—the love of symbols of honour we have not earned, and which have lost their meaning by misuse." The same article also contains several practical ideas expressed in Mr. Robinson's direct, unflinching style.

* * *

Ghost photography is up again, and that very incomprehensible gentleman, the Rev. Mr. Haweis, along with it. This photography of the spiritual part of man is duly explained, and its integrity supported by Mr. Haweis in the *Fortnightly Review*, whilst Mr. S. H. R. Salmon gives practical instructions and illustrations in the columns of the *Million*.

* * *

Mr. J. K. Tulloch, M.B., "frae the north," under the title "Breadth," goes for what he calls the "out-of-focus dodge." This gentleman didn't make out a very good case, or many friends, when he recently attacked the amateur *versus* professional question, and he certainly hasn't quite hit the mark this time. Our canny friend has the gift of plausible pleading, but be the merits of out-of-focus or razor-edge definition what they may, these specious arguments don't alter the fact that the former is rather gaining favour.

* * *

Good "Baron"—under which *nom de guerre* a correspondent shows how the enthusiast, even though bound to office duties all the week, may yet practice outdoor photography in winter months—good sir, we are with you in spirit, and wish that there were more amateur workers of your kidney. You suggest the possibility of an artistic study of a lamp lighter. Only last week we saw such, and were astonished to find how with care lighted lamp and twilight surroundings might be correctly, aye and picturesquely, rendered by him who goes out just when his fellows throw up the game. See to it that you make the most of all this darkness, mist, and gloom. The most conventional and severest of Philistine architecture becomes poetic in a "London particular," if it be not too dense.

The medals which were awarded at the East London Photographic Society's Exhibition last autumn will be distributed on the 17th of this month, when the members of the club and their friends will dine together at the "Three Nuns Hotel," Aldgate. Mr. Horsley Hinton has been asked to present the medals on that occasion.

* * *

Entry form and particulars of the sixth annual Exhibition of the Photographic Society of Philadelphia to be held in April next are now in circulation. Pictures from Great Britain can be delivered to the care of the Editor of the *Practical Photographer*, Memorial Hall, London, not later than March 1st, and entry forms may be obtained from him or from us.

* * *

For the Invitation Exhibition of Artistic Photography to be shown at Chicago under the auspices of the Royal Commission, Mr. Seyton Scott is acting as Hon. Secretary, and exhibits must be ready by February 11th.

* * *

The non-classified-open-to-all conditions of the forthcoming Exhibition to be held by the Fillebrook Athenæum, Leytonstone, appear to find favour, and we understand that numerous applications for entry forms are being received from all parts, and including many well-known exhibitors.

* * *

Our publishers have received a correspondence card from Canterbury, with an order for back numbers, enclosing a postal order, but no name or address. Will the sender kindly communicate at once?

* * *

We print elsewhere an appeal from the Hon. Sec. of the Louth Photographic Society, which we commend to all our workers who are willing to help, amuse, and teach local workers without any expense and with little trouble to themselves.

* * *

We have before now warned our readers as to the use of our Sale and Exchange column by unscrupulous people. This we cannot avoid in any way, but we have provided a safeguard in the shape of the deposit system, which should be invariably used. A week or so back we were informed by the police that a long-firm, with headquarters at Glasgow, had been using our sale column for fraudulent purposes, and these gentlemen are now in custody. This week we are informed that a firm nearer London are using the photographic papers for doubtful business. We shall soon have to start an exclusion list and publicly refuse certain advertisements.

* * *

Some years back Messrs. Perken, Son, and Rayment placed at the disposal of the Editor of the Amateur Photographer a handsome biunial lantern, which might be loaned to any of our readers for charitable purposes. In many cases it was found that it could not be used, on account of the necessity of using gas, as it was not fitted for oil lamps. Messrs. Perken, Son, and Rayment have now, however, given us two lanterns in place of the biunial, which may be used for oil or limelight.

We shall be glad to hear from any of our readers who may wish to borrow these lanterns. The only conditions for the loan of the same are (1) that they shall be used for charitable purposes, (2) that they shall not be loaned to photographic societies. If those desiring to borrow one of these lanterns will, at the time of application, inform us whether they intend working with the lime or oil lamp, we will send them out properly fitted up. There are no booking fees, and the borrower will merely have to pay carriage both ways.

We are quite sure all our readers will appreciate the kindness of Messrs. Perken, Son, and Rayment, and these handsome lanterns, with a set of our lantern slides, which we also loan free for charitable purposes, will, we hope, enliven many dull nights during the season.

Letters to the Editor.

PACKING OF PLATES AND PAPERS.

SIR,—Referring to Messrs. Williams's and Anderson's letters about packing plates, I beg to say hear, hear. It is a great nuisance to have plates in half dozens in one paper; fours are bad enough. No wonder Mr. Anderson protests at twelve. Cannot the manufacturers wrap, say, two in a piece of waterproof paper, and the whole six packets in brown paper, and then in a box?

Personally, I think it would be a good thing if the manufacturers would sell, say, all sizes, from half-plate upwards, half a dozen in a box, as well as in dozens. I daresay there are many others like myself who would be glad of half a dozen when they don't want to use a round dozen all at once. I cannot say I quite agree about marking the sensitometer numbers on the boxes. I know sometimes they are put on and others left out, and many don't put any speed numbers at all.

Now, as some brands of plates are said to vary so much, I think it would only make matters worse to mark the different batches with the same number; the sensitometer numbers are bad enough without that. It is obviously absurd to mark a box of plates with a certain number without testing them, because another box of the same brand once upon a time indicated that speed. Suppose, for instance, a firm marked their plates, say, forty-five; then, after they had pretty well doubled the speed, still marked them forty-five. What should we think of them? I think it would be a very great advantage if the manufacturers would *all* mark their plates on Hurter and Driffield's Actinograph system. By the bye, I heard several makers had decided to adopt Hurter and Driffield's system; but, so far as I know, only two English firms have started it. Are they waiting for the New Year to turn over a new leaf?

Now for papers, or specially bromide papers. Cannot the makers protect them with waterproof paper? and can they not give an average exposure at an average distance in their instructions, say, 12 in. from a No. 5 Bray? Now one maker perhaps gives the above distance as the average, another 24 in. from a No. 6 batswing, and a third a certain distance from kerosene burner. If they want so many variations, why not give a list of the different lights and distances?—Yours, etc. J. W. S.

* * * *

MOUNTING P. O. P.

SIR,—Having several times noticed enquiries respecting the difficulties many workers find in mounting P. O. P. so as to retain the perfect enamel surface produced by squeegeeing on to glass, I am glad to be able to give a few hints which will enable anyone to mount this paper with ease and certainty. The difficulty I found was to obtain a mountant that had strong adhesive qualities with but little moisture and quick drying. The one I found best was the Excelsior, made by G. Houghton and Son, of Holborn, and to use it I hold the print (just as stripped off the glass and *unbacked*) face down in the hand, then brush a thin layer of the mountant along each edge, next brush over the centre of the mount with a solution of three-quarters mountant and one-quarter water (use as little of the mixture as possible), place the print in position on the mount, and rub all over with a silk handkerchief. Do not use any other pressure. I have mounted some hundreds this way, both large and small, and never have one spoilt. The gloss remains quite uninjured.—I am, yours, etc., ARTHUR C. COCKBURN.

* * * *

P. S. G. B.—A CORRECTION.

SIR, — I shall be much obliged to you if you will allow me space to inform the members of this Society that the figures opposite the names of Mr. Traill Taylor and Professor J. M. Thomson, in the table on page 90 of our Journal, have been accidentally reversed, and that Mr. Traill Taylor should have had six instead of two attendances credited to him.

I would also remind our members that nominations for the new officers and council should be sent in without delay, the 24th of this month being the last day upon which they can be received.—I am, etc., CHAPMAN JONES (Hon. Sec.).

50, Great, Russell Street, W.C.,
January 7th, 1893.

A CORRECTION.

SIR,—We are pretty well accustomed by this time to see misstatements made with regard to our investigations, and, as a rule, we pass them by; but when they emanate from the Editor of a photographic journal, we feel it to be necessary to expostulate.

In your review of the year 1892, last week, you say that we have admitted that eikonogen will give greater sensitiveness than pyro, and that this is contrary to our previous statements. We have never done anything of the kind, and we give your statement our unqualified denial.

This is not the first occasion upon which you have made statements with reference to our investigations which are contrary to fact, and which clearly indicate that you are far from conversant with our work. We do not, for one moment, imply that you intended to misrepresent us; but, in common fairness, we think you might at least read what we have written before you venture to criticise.

We are sorry to feel that you have uniformly treated with bias our earnest efforts in the cause of photography, and we must beg of you to publish this letter as it stands in your next issue, and not to substitute for it a few remarks of your own, as you did on a previous occasion.—We are, yours, etc.,

F. HURTER AND V. C. DRIFFIELD.

[The statement complained of was written from memory, under a rush of work nor could we at the moment refer to the passage we had in mind, which was to the effect that "to Rodinal (not eikonogen) the plate was about three and a half times as fast as to pyrogallol." With regard to the rest of the letter, as to bias, etc, we can afford to ignore it.—EDITOR].

* * * *

BACKED PLATES *v.* MORE EMULSION.

SIR,—A short time ago I noticed that a correspondent wanted the plate manufacturers to send them out ready backed, making a slight charge for the same.

Now it occurs to me that if, instead of their backing the plates, they put upon them quite 50 per cent. more emulsion, they would confer a greater benefit upon both amateurs and professionals.

And now a word as to backing. The best of the many I have tried is—

Essence of cloves	6 dram.
Turpentine oil	1 „

With finely powdered Venetian or Indian red added to form a stiff paste. It is applied with a hog-hair brush.

The plates may be put into the slides right away and used whenever wanted, as I have not found it necessary to first dry them.—Yours, etc., PROFESSIONAL.

* * * *

"MOONLIGHT" PICTURES.

SIR,—Your comments in last week's issue of the AMATEUR PHOTOGRAPHER, upon my letter in reference to "moonlight" pictures, induce me to write a word or two more upon the subject.

With the ground now taken I am in some agreement, but consider that a less pessimistic view of the possibility of producing good moonlight effects is fully warranted by the facts.

As you concede that there are exceptions to the general difference between day and night forms of clouds, all that is required to meet that point is selection of the right time to take such photographs.

Is it advanced as a fact or an opinion, that "the relative tone of sky-background and lights and darks are changed?" The light being similarly placed, and the reflecting and distributing media being identical, what is the explanation of such difference?

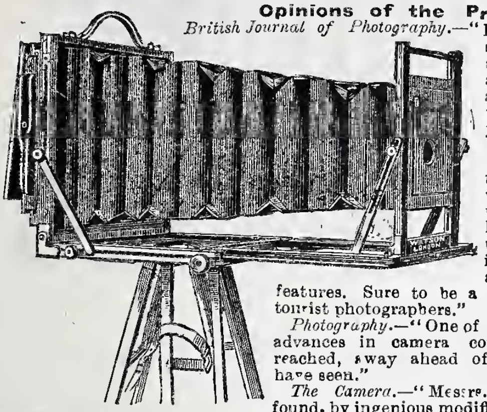
It is asked, "Who has measured the difference between sunlight and moonlight so as to be able to under-expose by just that amount?" The photographer practically does this when he ascertains by experiment what exposure and after-treatment will produce the desired effect.

Please do not suppose that I am recommending this as a suitable field for the enterprise of the beginner, or even a particularly desirable application of photography. I am simply protesting against such effects being utterly rejected as "frauds" on account of the method of their production.

By all means, under the conditions specified, produce the "historic subject." It might be very interesting and free from objection as a *picture*, if reproduced in a non-photographic process.

W. WATSON & SONS, 313, High Holborn, London.

WATSON'S "ACME" CAMERAS



Opinions of the Press.

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Amateur Photographer.—"A wonderful, compact, and fairy-like instrument, exhibiting several new and important features. Sure to be a favourite with tourist photographers."

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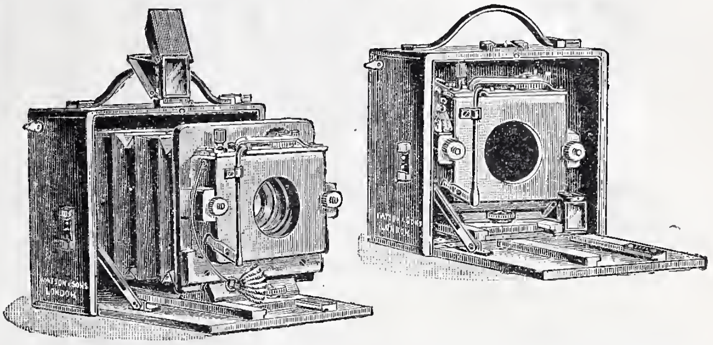

Made in box form, of sufficient size to contain, when closed, the Bellows, Front, Lens Shutter, and Finder. The front of the box falls down, and is held rigid and horizontal by a strut; the Camera is then extended along it to focus, a Scale of Distances is marked, but a ground glass is provided and can be used if desired. The Camera may be supplied complete, or alone, or fitted to any suitable Dark Slides, Lens, and Shutter.

Made in Three Sizes	¼	5 by 4	½ plate
Prices of Cameras without Slides	£1 10	£1 15	£2 10

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	£	s.	d.	£	s.	d.	£	s.	d.
Camera and 3 Double Slides	3	15	0	4	6	0	5	10	0
Watson's Rapid Rectilinear Lens, with Iris Diaphragm	2	17	6	3	2	6	4	0	0
Exposure Shutter...	1	0	0	1	0	0	1	0	0
Finder	0	10	6	0	10	6	0	10	6
Travelling Case ...	0	12	0	0	15	0	1	0	0
	8	15	0	9	14	0	12	0	6

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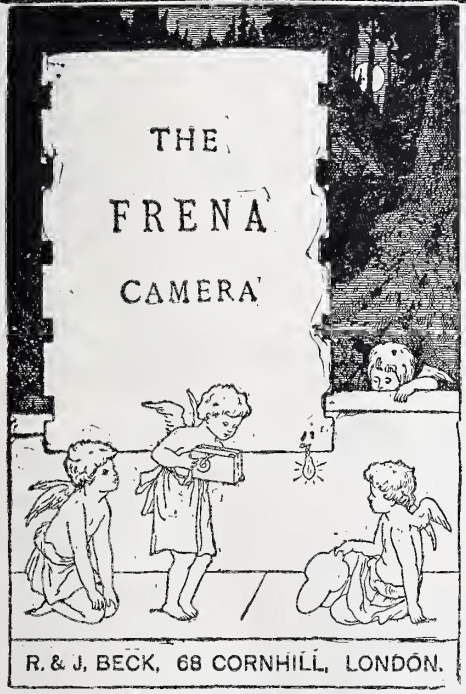

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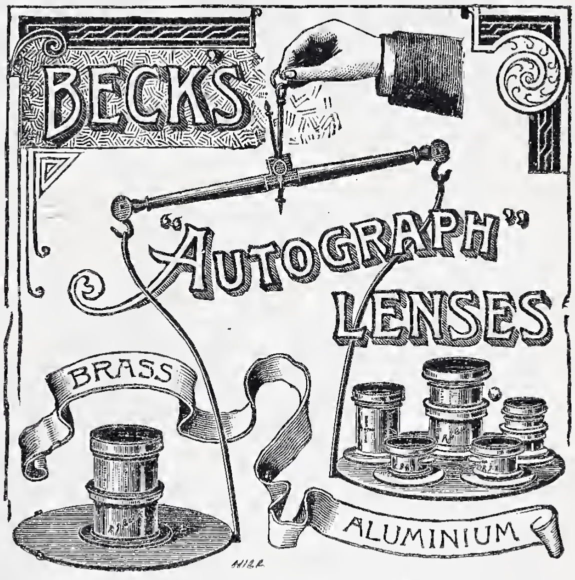

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But as a *photograph* it introduces so fearful an anachronism that any possible appreciation of its pictorial qualities will be swamped on the instant. All this, however, is irrelevant to "moonlight" photographs, as the case against each is widely different to the other.

I do not know whether your concluding allusion to "strangely erroneous ideas" was intended to apply to what I had written; f so, I object to any dogmatism in connection with the matter.—Yours, etc. J. W. Huggins.

* * * *

RATIONAL DEVELOPMENT.

Sir,—With reference to the paper on the above by Mr. Simkin, and the letter by Mr. Bankart on the same subject, which recently appeared in your journal, your readers may be interested to know that, as there is "nothing new under the sun," so the use of citric acid and a process of redevelopment has been advocated before.

Mr. B. J. Edwards contributed an article on "Alkaline Development, a New Method of Intensifying before Fixing," to the "Year Book of Photography," 1888, where it appears on page 127. The process there recommended is almost precisely similar to that of Mr. Bankart, the development being continued with a pyro and ammonia solution, containing citric acid, after the ordinary developer has brought out the image sufficiently.

Undoubtedly the system is a most rational one, and Mr. Bankart's modification of Mr. Edwards's method decidedly tends to make it more generally applicable.—I am, yours, etc.,

W. J. Dibdin.

Photography in a Flat Country.

Part I.

Many who at one time regarded the flat and in some aspects dreary country which characterises so large a portion of the eastern regions of our land (as, for instance, the Cambridgeshire Fens), as least likely to lend itself to the making of pictures, have come to a better understanding with the plainer portions of the earth, and in the matter of interest and picturesque qualities the land of supposed scarcity has proved abundantly productive, not only of actual material but also of motive and poetic sentiment, and we see now on all hands the results of the photographer's visits to flat country; and reedy dykes and grassy meadows are fast becoming one of the most fruitful sources of photographic picture work.

For this, mere imitation of well-known workers is, to a large extent, answerable, and hence it follows that in many a place far removed from our greater cities, and where, therefore, the influence of the exhibited pictures is rarely felt, there are those who, not possessing very great originality and never having had their attention directed thereto, may still remain unsuspecting the presence of beauty in localities and objects where others have of their own accord or at another's direction sought and found that which has been an incentive to fresh work, and its reproduction a much prized reward.

That those who live amidst great natural beauties are often the very last to observe or appreciate them, is patent to anyone who has travelled at all into districts which are famous on account of the abundant beauty and picturesqueness with which nature has endowed them. Still, it was not without some surprise that we recently heard it said by a photographer, a man of taste and ability, speaking of the neighbourhood where he lived, that "there was little possibility of doing much landscape photography in his part of the country," whereas that particular neighbourhood was one to which we were especially attached, and to which, at some considerable trouble, we had journeyed down with camera and appliances for a few days' campaign. But we are pleased to know that our friend has since modified his views, with the result that not only in far off Norway, Scotland, and the Continent of Europe, but under his own English sky, all changeful though it be, and that within a mile of his own door, he employs his camera, and has many a picture of very charming character and delightful subject.

Mankind is essentially gregarious, and taste runs largely in grooves. Only now and again may one man, or some few, step out of the track and do something original, but the original work soon loses its unique character, for there will be many who will follow and imitate—not necessarily slavish imitators, deliberate plagiarists, but those upon whom the work of the originator has operated as a pointer and an eye-opener. And after all there is nothing but what should be in this state of affairs; it is precisely the function of the artist to show his fellow-men, by his pictures, beauties in nature which they had not, by reason of incapacity or for lack of opportunity, before seen of themselves.

A photographic society at Louth are just now inviting well-known photographers to contribute pictures to a free, public, non-competitive exhibition which they purpose holding, and are, moreover, asking some to lend examples of landscape pictures, especially illustrative of the picturesque possibilities of the flat fen country in which their town of Louth is situated, apparently to the end that the taste of their fellow-townsfolk may by chance be led to appreciate better their own immediate environment, and so teach them new pleasure in what they may think of as an uninteresting and monotonous region. The aim seems to us an excellent one, and we wish the scheme all success.

To seek why one description of landscape appeals more strongly to one mind than to another is perhaps as needless a quest as it would be fruitless. The likes and dislikes encountered amongst various classes of men are largely directed by good or bad taste, but when the liking is a pure admiration of Nature it were presumptuous, not to say irreverent, to dogmatise and say that the claims of river-side marshes are superior in beauty to the swelling hill side or rugged mountain. So that our purpose in writing is not to extol the beauty of the fenlands and derogate the highlands, but because it has been by many overlooked to direct the attention of those who had not searched there before. Perchance this strange beauty of the fens requires more seeking for—a beauty that grows upon one—and our affection for these green plains a love that once kindled is fed by closer knowledge and more intimate acquaintance. Then it is that much that seemed ordinary and commonplace assumes a dignity and importance that surprises us.

Now, seeing that the regions of grand mountain scenery are in this country restricted, and for the most part are removed from the centres of civilisation and population, many who would cannot visit such places except at intervals, and rarely but few there are who could not easily find a mile or two of river marsh at least, at no great distance from home, and by turning such to account import a fresh enjoyment into their usual daily routine, cultivate themselves and give pleasure to others.

There is that, in the stately beauty or grim, sombre grandeur of the mountain, with its mirror-like tarn and clinging forests, which never fails to awaken wonder and admiration; and no pointing out is needed to make at least some of its claims to notice seen. The very largeness and magnificence of things is impressive. It is amongst the mountains that variety of form, brilliancy, and multiplicity of colours seem wantonly displayed. Far down in the sheltered plain Nature works away quietly and subtly, beautyfying and finishing each tiny detail, making each flower and leaf a miracle of beauty; but it is all of a quiet, unobtrusive kind. Up there, on the high hills, he who woos Nature is dazzled with her splendour, whilst in the valley or the level mead she is coy and retiring, but not less beautiful because her veiled charms are passed unheeded by the undiscerning.

It may be that the photographer has yet to arise who will show how far the camera and lens can go in representing mountain scenery. Certain it is that hitherto photography in this class of work has scarcely risen above the purposes of mere topographical survey, so that it is generally supposed that mountain scenery possesses some inherent difficulties which handicap the camera and make all its attempts to portray the true impression of mountain abortive and unsatisfactory. Be this as it may, it is not our intention to discuss it here; but the difficulties suggested are surely not present in the flat country, the chief features of which appear to offer as few mechanical difficulties as anything. The drawing—that is, the perspective—is usually very simple; the arrangement, or composition, has no peculiarly complex conditions. Tone, and the careful preservation of true gradation, is, perhaps, before anything important (as when is it not?); and because of the great uninterrupted expanse of sky, particular care needs to be paid to that part of the picture which lies above the horizon or sky line.

Perhaps it is that as photographers began to study Nature more and learned the value and importance of clouds and skies in their landscapes, so they were drawn towards these parts where the over-arching sky is more ample than anywhere else save the sea; and not perhaps its vastness only, but the opportunity of watching the effect on the earth beneath of each changing light and shadow which drifting cloud and sunbeam cast and break, as the cloud-shadows pursue and swallow up the little spaces of sunshine, chasing them across all the wide plain.

There is no excuse for the earnest photographer who lives in the open fen country or the wide marshes of adjoining counties, if he has not made a continued study of cloud and cloud effects; and having had this opportunity of study, he of all others should be exempt from the sin of employing clouds in a landscape which, by their illumination or depth of tone, perspective or form, are incongruous with the rest of the picture.

But of course under the comprehensive term of flat country very varied landscapes are included. In the fen country proper, say Cambridgeshire and Lincolnshire, the land is more drained than perhaps we would wish, and the long, well kept dykes intersecting each other with geometrical precision, and the long rows of straight trees which grow on the banks, are often very difficult to manage. Yet with all the care bestowed upon them, nature occasionally asserts itself, and out of fifty trees perchance some five of them, where the ground is rotten, grow a little less rigidly, and lean towards each other, making a possible group, and at their feet some stronger grown rushes and wild flowers help us to what we are looking for. There is surely more satisfaction in having succeeded in making a picture out of unpromising material than in having journeyed far to a particular spot where it was all but impossible not to make a pleasant picture. And then not far from our dykes and regiments of prim trees is surely an osier bed, with its swampy ground and vigorous under-growth of all things which love abundant moisture: and there is the end of the dyke which has fallen into decay, and a rough plank bridge by which to cross; and away behind and beyond the osiers, growing closely like a thicket, the distance fades away, growing fainter and greyer until the green grass levels, and the clusters of ash and alder are merged into a far blue belt dividing heaven and earth; and when the view is more open still, the luxuriant ground alternates with green and brown or yellow, according to the nature of the ragged turf, sedges, or rushes which it supports. It is not always one continuous lawn of pasture, but broken up and varied, and often through it all we may trace a winding line of greener grass indicating the course of some quite unseen brooklet, which loses itself amongst so much wet and softness before it reaches our feet, but culminates some distance off in a pool, or well, fringed with reeds and frequented by thirsty cattle, sheep, or nimble colts. And if the river is not far off, each bend or reach will offer opportunities. We need not search for bridge or housetop, or even a group of trees; a space of water, a cluster of reeds or docks for foreground, and a distance which by its uninterruptedness may suggest boundless expanse and freedom, are enough and ample to form a picture. Late summer and autumn or winter are perhaps best; in early spring the ground is apt to look somewhat closely shorn; yet at all times there is something to be done.

In the grey of dawn and the warmer twilight of evening, when mist-wreaths rise and drift, and shadows creep over the ground which before was flat and light, there is a whole life's work in interpreting aright and picturing these mysterious effects, which depend more upon the atmosphere than any terrestrial features. Wrapped in this mist, half obscured and seen only at intervals, the most impossible scenes become full of poetry and are picturesque. And, of course, we need not remind our reader of the homestead at the edge of the fen, when we have safely extricated ourselves from the mud and mire, and unravelled the labyrinth of dykes and lodes, under the shelter of beech and elm, verdant meadows, rich cornfields, white sheep, or golden gorse scattered on the rising ground behind, a certain quaintness carrying thought back into primitive times when hardy fenmen first settled here and strove first to cultivate the land amidst all the wilderness of swamps.

Then there is the flat country with its wide waters, characteristic of Norfolk; next the elevated commons and heaths so often met with in Suffolk, which brings us to some of the wide river valleys of Essex; and following these we are brought to those strange mud flats which at high tide and low so alter the appearance of the shore of estuary or sea—miles of soft, yielding ooze channelled and moulded by the waters, full of richest hues, varied by sparkling pools, play-ground and banquetting table alike for a thousand wild fowl and sea birds; and then where the mud has grown firmer and the falling water or rising land has lifted it, and grass and salt-loving plants have taken root, and holding it together with their myriad fibres, making a sponge-like turf, salt and bitter, useless for grazing or fuel, we have those strange "Saltings" about which one might write a whole volume and study for a lifetime, changing at every hour, with each tide, each season, peopled by birds, strewn with wreckage, traversed by fisher-folk and fowler. There is here a field for work already begun but practically inexhaustible.

We will continue next week, with illustrations.

(To be continued.)

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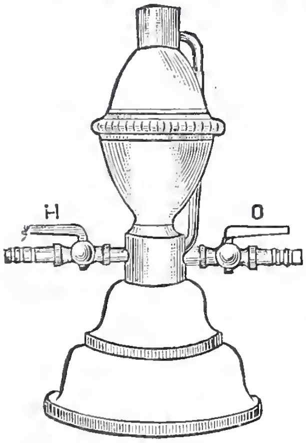

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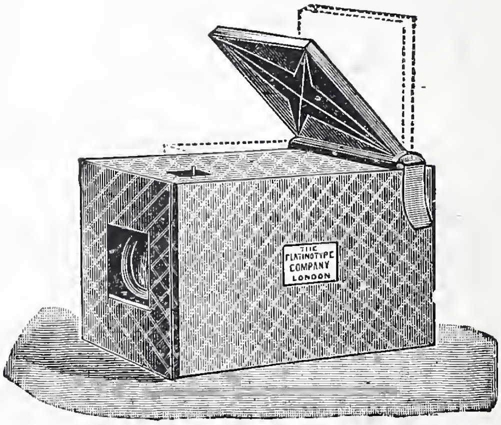

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By Enn. Ess.

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In diagram III. their position is indicated in skeleton form, the dotted line H K representing the face of the mirror, and K O the ground face of the glass screen.

The necessary frame to hold the ground-glass is given in plan and section, fig. 10. The two side pieces are of wood, for the most part $\frac{3}{8}$ in. wide, $\frac{1}{4}$ in. thick, the length $3\frac{5}{16}$ in. A rebate of $\frac{1}{8}$ in. in width and $\frac{1}{16}$ in. deep is taken out along one edge of the width of each piece, forming bed for screen to lie in. Measuring from the ends that will be the bottom, $\frac{5}{8}$ in. of this rebate is entirely removed, so reducing the width of the side pieces for this length to $\frac{1}{4}$ in.

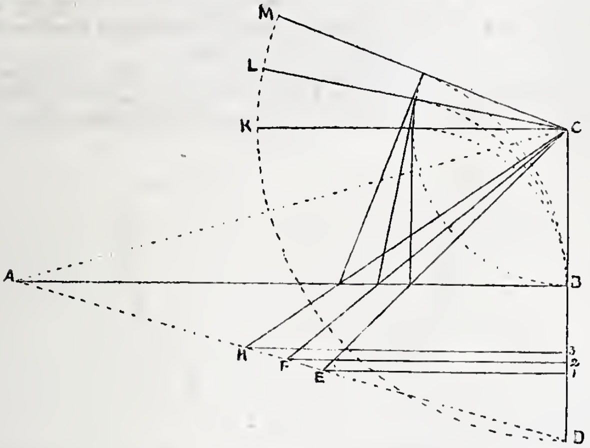
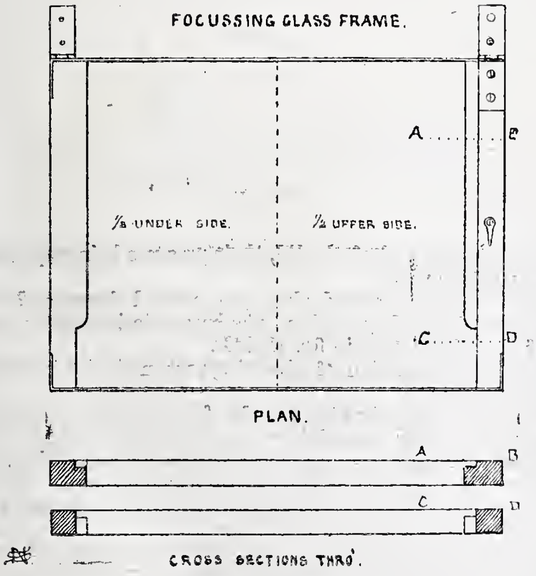


Diagram V.

FIG:10.



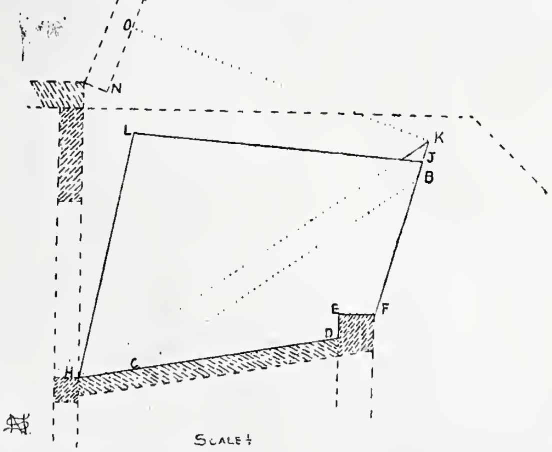
SCALE $\frac{1}{4}$

The two ends of the frame are formed of plates of brass $\frac{1}{4}$ in. wide, $\frac{1}{32}$ in. thick, $5\frac{7}{16}$ in. in length, each end being turned up inwards at right angles $\frac{3}{8}$ in., and drilled for one screw $\frac{1}{8}$ in. from end. These ends are sunk flush into the outer faces of the side pieces to which they are screwed, the outside width of the frame thus being $4\frac{3}{4}$ in., and top to bottom $3\frac{5}{16}$ in.

To the upper ends of the side pieces, hinges $\frac{1}{4}$ in. wide are attached, for the purpose of fixing the frame to the flap cover of the chamber, as will be shortly shown.

It will be noted in diagram III. that the upper edge of the mirror, denoted by the letter K, overlaps the face of the back frame of the picture chamber, against which the front of the changing box must closely fit, by the distance A P—that is, $\frac{1}{2}$ in. In order, therefore, to permit of free ingress and egress of the changing box from and to its proper position, the upper edge of the mirror must at such times be thrown forward until it comes on a line with the face of the frame, to allow of which the mirror must be capable of a certain amount of to and fro movement about the point H (same diagram), which will prevent its being made a fixture in its chamber. As this is a shade over $4\frac{3}{4}$ in. in width, and the outside width required by the mirror being but $4\frac{1}{4}$ in., there is $\frac{1}{2}$ in. available, which enables a separate cell in which to fix the mirror to be prepared, the cell fitting into the chamber.

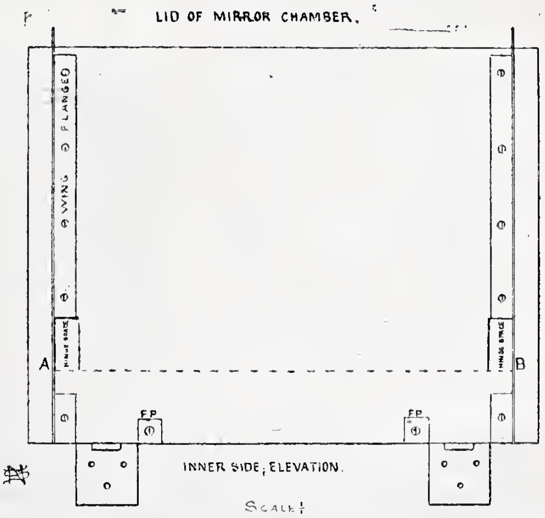
FIG. 11.



SCALE $\frac{1}{4}$

To obtain the shape and proportions of this cell, a plan is prepared of the mirror chamber precisely on the same lines as in diagram III. Such is found in fig. 11, where the line H K represents the front face of the mirror, and the figure H K B C the mirror as it lies on its bed. To this bed, which is $\frac{1}{4}$ in. thick, are fixed two side pieces $\frac{1}{4}$ in., forming with it the mirror cell

FIG:12.



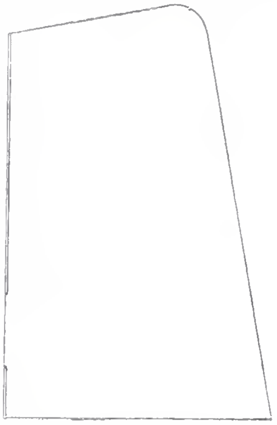
SCALE $\frac{1}{4}$

The side pieces take the general shape of the side of the chamber itself, though not its absolute dimensions, for, as before stated, the mirror having at times to be thrown forward to the extent of $\frac{1}{2}$ in., the centre of motion being about point H, and the screen frame having to be accommodated beneath the chamber flap top when closed, the shape and dimensions of the sides of the cell become as shown by the letters H D E F J L, the edge H L of the cell sides lying up against the face of the centre, or bellows frame, when the mirror is tilted forward.

The centre of motion of this tilting forward is at the point H, that is along the lower edge of the mirror; the foot of the bed of the mirror must, therefore, when in its normal position, be hinged to the bottom of the chamber by a strip of linen along its whole length, thus fixing the cell in the chamber, but allowing it the movement required.

The line K O represents the ground face of the glass screen, and N R the inner side of the chamber flap top in their respective positions when opened up for viewing reflection from the mirror. The distance N O, *i.e.*, that from bottom inside edge of flap lid to point where the line K O meets the lid, is to be *accurately* noted, as upon it, in construction, depends whether the reflection from the mirror coincides in focus with the reflection on the exposed plate.

FIG. 13

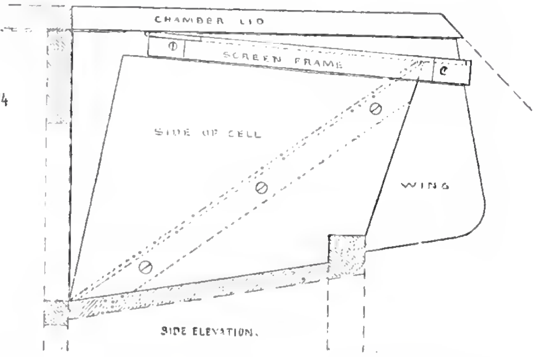


WING OF MIRROR CHAMBER LID.

It has been stated above that the frame of the focussing screen is hinged to the inner side of the chamber flap lid, an elevation of which is given in fig. 12, the dotted line AB on which corresponds with the point O of the previous figure; that is, this line AB is the same distance from the lower edge of the lid, as O is from N, fig. 11, and marks the height at which the *ground face* of the focussing glass must be when the frame is screwed on to the lid, and stands at right angles to it. *This fixing calls for great care and nicety*, for the reasons already assigned. The upper flaps of the hinges attached to the screen frame are sunk flush with the inner face of the lid, occupying the positions shown in the figure.

MIRROR CHAMBER CLOSED.

FIG. 14



On either side of the lid, and at ¼ in. from the edges, metal wings of the shape and dimensions given in fig. 13 are fixed in the manner shown in fig. 12. These are cut out of sheet zinc, and act as side shades to the focussing glass. They are, of course, covered with a "dead black" after fixing in position.

It presents itself from the foregoing that, the focussing screen being hinged to the lid of the mirror chamber, the movement of the one will necessitate the movement of the other, and it is so. Fig. 14 gives a side elevation of the mirror chamber with its lid closed; the near wing being removed from the lid, in order that the position which the screen takes when shut up within it may be seen. The position assumed by the wings is also seen. These slide down between the sides of the chamber and mirror cell.

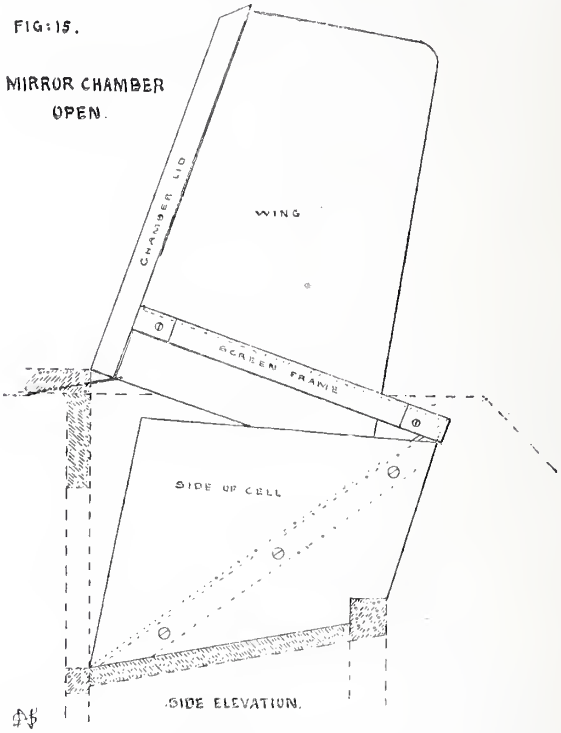
When describing fig. 10, it was shown that ⅝ in. in length of the rebate along the top inner edge of the side pieces of the focussing screen frame was entirely cut away from the lower ends of the sides. The reason for this now becomes more manifest as in the figure now under consideration it will be seen that the upper corner of the mirror bed is shown as protruding within the frame. This cutting away of the rebate allows for this, the corners of the mirror bed thus becoming guides to the frame, preventing it having any lateral motion.

On the lid of the chamber being raised, the frame of the focussing screen is drawn forward and upward, its lower end sliding against the upper back corners of the sides of the cell, until it obtains the position shown in fig. 15, where it will be seen that the upper edge of the mirror bed coming in contact with the lower plate of the frame, blocks its further progress; when thus stopped, the ground-glass is in its proper position for receiving reflection from the mirror beneath it.

To support the lid of the chamber when opened in the position shown, two flat metal springs are fixed beneath the cover of the fore part of the camera, which project through two slots for ⅜ in. beneath the end of the lid, their pressure being upward, as shown in this figure.

FIG: 15.

MIRROR CHAMBER OPEN.



On the lid being closed, they are pressed down, and lie as shown in fig. 14. They work on the brass friction plates at the foot of the lid, lettered in fig. 12, F P.

In fig. 15 the position of the wings, when the lid is raised, is also shown.

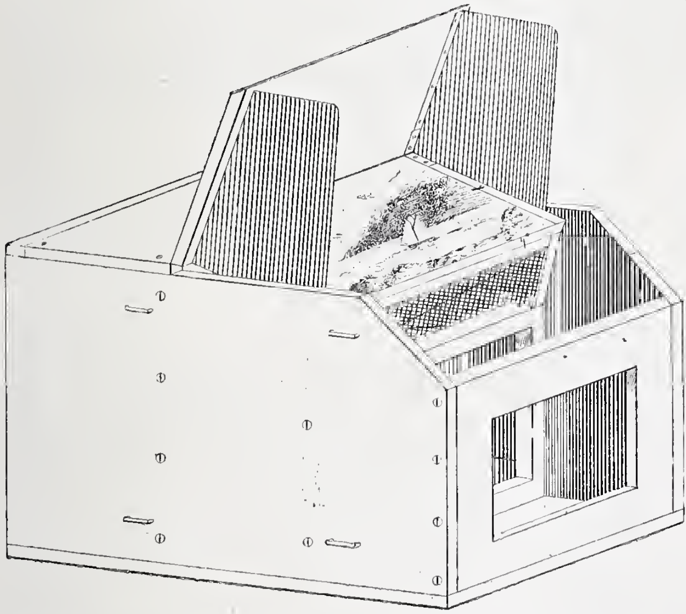
So far no mention has been made of the shutter, and for this reason tastes differ so widely as to this adjunct, that the requirements for one class may be quite unsuited to another.

The camera, as herein laid out, is for a shutter working in the diaphragm slot of the lens tube, and is released by pressure on a button, which is flush with the bottom of the camera. There is space for a rolling blind shutter being attached to the front of lens, but in this case the sliding front of the camera would have to be removed to allow of any extension beyond the equivalent focal length of the lens. If it be desired that the blind should work behind the lens, the camera, as herein planned, is unsuitable, though the lines upon which it has been laid out are easily adaptable to meet the wished-for end.

In laying out the mirror chamber, its depth and length are dependent entirely on the angle at which it is proposed the mirror shall be placed, the angle of 45 deg. taking the deepest and shortest chamber, the depth decreasing and the length increasing as the width of the angle diminishes. This is clearly seen in diagram V., which is laid out on the same lines as in diagram III. Here A B equals the equivalent focal length of the lens; C D width of quarter plate. C E represents face of mirror placed at an angle of 45 deg., C I being depth of its chamber at lower edge of mirror, and I E the length, C F mirror at 40 deg., C 2 depth, and 2 F length of chamber; C H mirror at 35 deg., C 3 depth and 3 H length of chamber. As the focus is extended so will these measurements become lengthened in corresponding ratio. The focussing screens occupy the positions C K, C L, C M respectively.

Fig. 16 is an isometrical projection of the camera when joined up, the mirror chamber being open showing reflected picture on the focussing glass, the well for the changing box being unoccupied.

A circular level, which is let into the centre of the top of the front part of the camera, is hidden by the mirror chamber lid. The exterior of the camera should be covered with the best description of leather cloth, such as is used for covering the seats of chairs, hot glue being applied to the wood, and the leather cloth well stretched over, and rubbed down. One piece being used to entirely envelope the top, bottom, sides, and back end of the box, with full margin, which is cut away eventually with a sharp knife after the glue is set. All edges should be then served with a mixture of turpentine and wax, and well rubbed with a V-shaped instrument.



The flap which closes the sloping top of the well is made up of wood one-sixteenth inch thick, covered on both sides with leather cloth, the lower edges of which are attached to the upper portion of the back end of the camera, thus forming a hinge. A hook and eye or any other convenient description of clasp is attached, by which the lid of the chamber and this flap, when closed, are united.

Two half-inch-wide straps are passed under the bottom and through the guides on each side, being united at the top to a cloak-strap handle on each side, by which means the camera is easily carried in the hand.

The weight of the camera when fully loaded with a dozen plates is 5 lb. 11½ oz.

* * *

Correction.—In Mr. Noakes's article on p. 19, second column, at the end of the first paragraph, the word "explosive" was inserted for endosmotic. It should read "endosmotic property of gas was a factor, etc."

Mr. Wm. Tylar's business has grown so much of late that he has been compelled to remove to larger premises at 41, High Street, Aston, Birmingham, and has there now a show-room and other conveniences.

Reviews.

Photographischer Almanach und Kalender fur das Jahr 1893. Published by Ed. Liesegang, Dusseldorf. Price 1s.

This little annual has now reached the eleventh year of publication, and keeps well up to the standard which it has hitherto attained. It contains numerous well-written practical articles, and is illustrated by a very fine photogravure and a summary of photographic progress in 1892.

La Photographie Nocturne: Applications de la Lumiere-eclair obtenue par la Combustion du Magnesium. By C. Klary. Published by Société d'Editions Scientifiques, 4, Rue Antoine-Dubois, Paris. Price 3s. 6d.

M. Klary's little book will be welcomed by all amateurs desirous of working with magnesium; it is a complete *resume* of all that has been written on the subject. The different forms of lamps and the method of arranging them are described, and clear, practical hints on lighting, etc., are included. The book will be found extremely useful.

La Bibliotheque du Photographie, en Francais, Italien, Anglais, Allemand, Espagnol. By Abel Buguet and Dr. Luigi Gioppi. Published by Société d'Editions Scientifiques, 4, Rue Antoine-Dubois, Paris. Price 2s.

The authors in their preface modestly state that they "do not pretend to have created a perfect work," but they have at least given us the most complete index to photographic literature yet issued. It is hardly to be expected that it is entirely free from errors; for instance, we find many of the English words wrongly spelt, and in one instance a series of articles which appeared in our columns are described as a book. We would suggest that in future editions the prices of all works should be included.

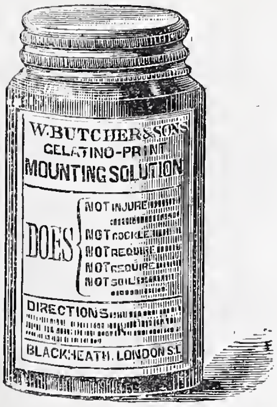
* * *

Apparatus.

WORMALD'S ENAMELLED FIBRE SLABS.

A. R. Wormald and Co. have sent us a sample of these slabs, which they have specially designed for squeegeeing chloride prints down to without the trouble of talcing or waxing. We have tried this, and find it answers capitally, and being reasonable in price—viz., 8 by 5, 1s., 12 by 10, 2s., and 16 by 14, 3s. 3d.—to our younger workers it will be a great boon, and even old hands will find it a great convenience.

BUTCHER AND SONS' MOUNTING SOLUTION.



W. Butcher and Sons, of Blackheath, London, S.E., have introduced a special print mounting solution, which possesses some novel features, and is specially useful for gelatino-chloride prints, either matt surface or glazed, as it does not injure the surface nor require heating, and will neither cockle the thinnest mounts nor require the prints to be damped. It is easy of application, and any excess can be at once removed without soiling the mount or print. It should lighten the troubles of amateur mounters enormously.

* * *

Louth and District Phot. Soc.—Again this society asks assistance from the leading workers in photography for a loan of examples of their well-known work, for the third annual exhibition to be held in the Town Hall, Louth, on January 26th and 27th, 1893. There are not any medals or other awards, the exhibition being got up strictly for the advancement of photography in the locality. To secure that end the exhibition is thrown open on both days free to the public. The society defray all expenses, including carriage, of all exhibits kindly lent. All pictures intended for exhibition must be mounted but not framed. Title, name and address may appear on front of mount. The Hon. Sec. is Mr. S. Francis Clarke, L.D.S., 8, Upgate, Louth, Lincolnshire, to whom pictures must be sent not later than January 23rd.

The A B C of the Lantern.

Adjustment of Condenser. See CONDENSER.

Adjustment of Jets. The efficiency of any form of gas jet will depend largely upon the skill of the operator in adjusting it. The two chief factors in determining the amount of light obtainable are: first, the pressure of the gas; and, second, the distance at which the lime is placed from the nozzle of the jet. Too great a pressure of oxygen will result in loss of light, the wasted gas impinging upon the surface of the lime and cooling it. The correct distance between the lime and the orifice of the jet can only be determined by experiment. The jet should be lighted and the oxygen tap turned slowly on, and the lime adjusted until by trial and error a point is found at which the greatest degree of illumination is obtainable. Having been once ascertained, the clamping nut should be tightly screwed down, so that the adjustment may be preserved. The soft limes, which are generally employed for the blow-through and spirit jets, soon become pitted, and consequently require turning occasionally, which is effected by rotating the milled head of the rod actuating the lime-turning adjustment with which all modern jets of good make are provided. The foregoing remarks are applicable both to the adjustment of the oxy-spirit jet (*q. v.*) and the blow-through jet (*q. v.*); with the mixed jet the gases must be so adjusted that they both enter the jet at an approximately uniform pressure. The hydrogen tap is first turned on slightly and lighted. When the lime has become warm it is turned on a little fuller, and then the oxygen is turned on at first very slowly. When the lime becomes red hot, both gases are turned on fuller by degrees, until the greatest amount of illumination is obtained. When the gases are properly adjusted the jet should burn silently, and without any "roaring" noise. In order to get the best light, the distance between the orifice of the jet and the lime will require to be carefully adjusted, as in the case of the blow-through jet. The intense heat of the mixed jet rapidly "pits" the lime, which, consequently, requires to be frequently turned. If this be not attended to, not only will the light deteriorate, but the safety of the condenser may be threatened.

Adjustment of Light. The inexperienced lanternist very often fails to pay sufficient attention to this very important part of the manipulation of an optical lantern.

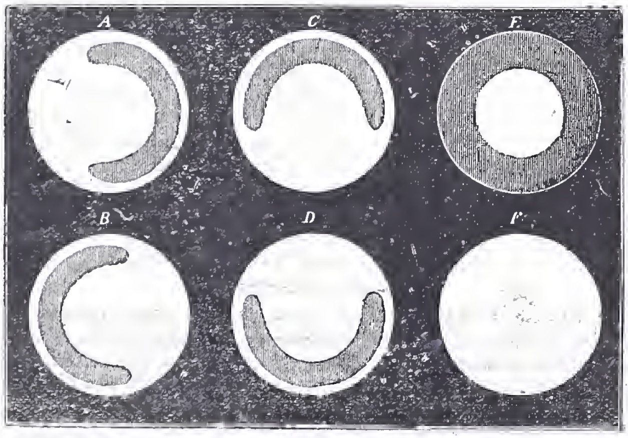


FIG. 3.

The jet having been lighted and placed in the lantern, a slide should be placed in the carrier, focussed, and removed. The appearance of the disc itself will then indicate the degree of adjustment necessary. The illumination will probably be unequal. If a dark patch appears upon the light (fig. 3), the jet must be slightly moved to the left, and *vice versa*; if on the top, it must be lowered; or if on the bottom, raised. These adjustments, which can all be effected by means of the clamping pin, which attaches the jet to the rod of the tray, must be continued until the unevenness of lighting is brought into the centre of the disc. By slowly sliding the tray which holds the jet towards and away from the condenser, a point will be found at which the whole of the disc will be brightly and evenly illuminated. The light is then correctly adjusted.

Adjustment of Objective. This, in all lantern lenses of modern make, is effected by means of a rack and pinion movement, such as is applied to an ordinary photographic lens of the portrait type. In focussing the projected image it is generally best to focus the principal object sharply; the best general effect is thus obtained. (See OBJECTIVE, and OBJECTIVE MOUNT.)

Aphengescope, or opaque lantern. This is an instrument for projecting the image of opaque objects, such as medals, coins, small diagrams, the works of a watch, etc., upon the screen. In construction it consists of a small wooden or metal chamber, at the back of which is a door to which is attached the object, the image of which is to be projected. To use the apparatus, the lantern objective is removed from the lantern and screwed on to the opening in front of the door. The nozzle of the lantern, from which the objective has been removed, is then brought close up to the opening in the opposite side of the chamber, so that the object placed therein becomes brilliantly illuminated by the rays of light proceeding from the condenser, and its image projected by means of the objective upon the screen. A similar apparatus is also obtainable for use with a pair of lanterns, by employing which a more brilliant effect is obtainable. With either form of instrument the limelight should be employed, an oil light not affording sufficient illumination to project a bright image of large dimensions.

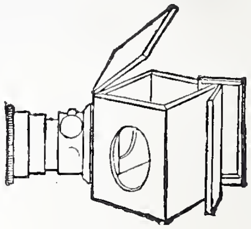


FIG 4.

Apparatus, Projection of. (SEE PROJECTION.) By this term is meant the projection of such physical experiments as the deflection of the galvanometer needle, or of the gold leaf in an electroscope, upon the screen. Such experiments are, of course, impossible with lanterns fitted with an ordinary stage, though most lanterns may be easily adapted to the work. Instruments made especially for this purpose are usually termed demonstrating lanterns, and are so constructed that the flange nozzle and jacket are entirely removable. An adjustable table being provided, in lieu of the ordinary stage, upon which the apparatus necessary for the experiment is placed, the objective is usually mounted on an independent adjustable support. The limelight may be regarded as indispensable for effective projection of solid objects, and the mixed jet will give the finest results. It will generally be necessary to have apparatus of specially small dimensions constructed, so that the whole of it may be included within the field of the condenser. An objective of about 12 in. focus will give the best result. A solid object unlike an ordinary slide does not occupy one focal plane, and consequently its enlarged image cannot easily be brought into a uniformly good focus upon the screen. The projected image will, of course, be inverted, but the employment of an erecting prism (*q. v.*) will overcome this difficulty, although its use will involve a slight loss of light. The golden rule for the adjustment of the

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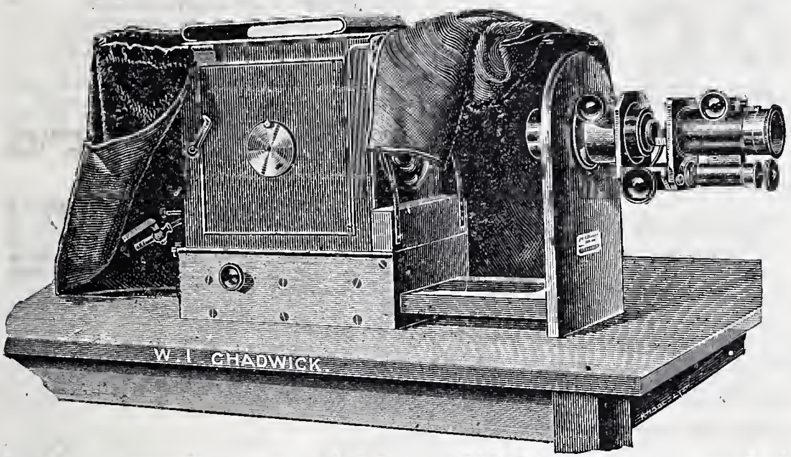

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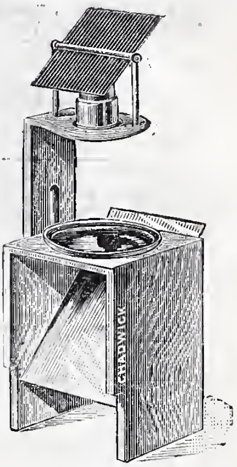

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demonstrating lantern for the projection of solid objects is well laid down by Mr. Lewis Wright in "Optical Projection:" "The proper adjustment of the cone of rays from the condensers so as to embrace the apparatus, and finally pass through the focussing lens, and give an evenly illuminated disc over the plane of the object, is the chief thing in order to obtain a good projection, and the objective itself 'focusses' better under these conditions."

(*To be continued.*)

Photographic Failures, and How to Ensure Them.*

BY C. H. DAVIS.

WHEN the Committee paid me the compliment of asking me to read a paper or give a demonstration before the club, I was at first minded to decline the honour, out of regard to my own self-conceit and in tender pity to my fellow members, feeling as I did, that in no branch or detail of our pursuit was I sufficiently proficient myself to impart instruction to others; and that as for giving a demonstration, I could demonstrate naught but my own ignorance. But even as the courteous refusal rose to my lips, a thought, an inspiration, flashed unbidden upon the sensitive surface of what I am pleased to call my mind. Rapidly was the latent image, or that thought, developed and fixed; the result being a reversed negative—I said "yes" instead of "no"! I felt the settled conviction creep over me, that in one department at least of our art-science I could hold my own, and out of the abundant experience of my own achievements essay with modest confidence to instruct others. One field there was in which, though many workers had done admirably, I might claim to have excelled them all—to wit, the fruitful field of photographic failure! And should I, in a jealous and niggard spirit, withhold from my fellow plodders in that well-trodden track the secrets of my own brilliant career? Perish the thought! And the thought perished; and here I am prepared to guide you in the path of failure as best I may.

At the same time I would not hold out delusive hopes. You must not expect all of you, follow as closely as you may my rules and axioms, that you will attain the same generous measure and wide variety of photographic non-success that I can proudly claim. In my case there were natural advantages and adventitious aids to failure which do not fall to the lot of all. A general muddle-headedness, a tendency to confuse one with another, substances of widely differing nature such as *pyro* and *hypo* and the like, a happy indifference as to such subtle distinctions as the terminations *ite* and *ate* and *ic* and *ous*, a complete ignorance of chemistry and optics, a generous trust in luck, a profound dislike to trouble in all shapes, that enviable inaptitude of manipulation which is happily expressed by saying of a man that "all his fingers are thumbs," a bad memory, a slow brain—these and other constituents of the successful blunderer were mine, and gladly would I impart them to such of you who may be less richly endowed, even at the cost of depriving myself. But alas! I cannot. All I can do is to advise you—beginners especially—who may possess any of these gifts, to cultivate and cherish them, and in no way perhaps can you more successfully accomplish this than by absenting yourselves from the meetings of the Richmond Camera Club.

And now let me just explain what I mean by a photographic failure. I do not mean, I need hardly say, simply a picture which falls short of one's ideal—still less do I mean a picture which, while commanding one's own approbation, falls short of the ideal of others (such, for instance, as the judges at the late Tunbridge Wells exhibition), nor again do I mean merely poor work, which is a relative term, depending on the standard by which the work is judged—one man's poor work another might be glad to claim as his best, and one's own best work of this year may be one's poor work in the light of next year's superior knowledge. No, what I mean by failure is just a good, honest, unadulterated *mull!* Is there any one here who does not know from his own experience what *that* means? My friend, your photographic career has been one of singular monotony! Failure imparts a zest, a flavour to our pursuit—it is the *sauce piquante* of the photographic *cuisine*. "Sweet," as we all know, "are the uses of adversity," and failure is to adversity very near akin! Failure is the alum bath that hardens the film of the photographer's moral nature—it operates as a reducer for his over developed pride—a clearer of his faculties. These and many other good ends does it serve, and withal 'tis neither far to seek nor hard to find. In every branch and detail of our work, at every stage of every process, failure may be found by the diligent searcher. She dwells in the dark-rooms, she follows us in the field, she crouches in the camera, she lurks in the lens, nay, I have even heard of a case in which failure disguised in a wet blanket gained admittance to a photographic club dinner, but that happened many years ago! Age cannot wither her, nor custom stale "her infinite variety" any more than they could Cleopatra's. Surely I have said enough to induce you to follow me in a rapid and superficial glance at some of the many means of ensuring that failure shall attend a fair proportion, at any rate, of our photographic efforts, *ensuring* it, that is to say, so far as ordinary want of foresight and lack of precaution can avail:—

> "'Tis not in mortals to command a failure,
> We will do more, Sempronius, we'll deserve it."

Let us then suppose ourselves starting off for a day's or a Saturday afternoon's photographing on failure bent. Of course, you will have no list of the articles you will require, as some methodical people do, but rely upon memory, thus affording yourself a good chance at the outset of scoring a failure through leaving some necessary part of your apparatus behind. I used at one time to be rather good at this—the camera screw, or the stops, or the tripod head, or the focussing cloth—once I even arrived at a scene of entrancing beauty without my lens! And the gentle sharer of my joys and sorrows, noting these things, and finding, I suppose, that the harmony of the walk was involved, used at last to ask me as we started out, "Now, have you got everything?" and once, I remember, thinking to be very helpful, she added, "Have you got your *stop-gaps?*" Many a fine photograph have I failed to get through these little bits of forgetfulness, until one day I found in my note-book a "reminder list," and took to using it, and that particular cause of failure was lost to me for ever. Supposing, however, we have left nothing at home and have got to work, you may hope to fail frequently and thoroughly in the matter of exposure. So easy is it to score failures from under or over exposure, that you can any of you do it without hints from me, provided you observe one golden rule, which is this: *Don't use a Watkins' exposure meter!* On the other hand, exposure tables are a great aid to failure and should certainly be used. They are so simple you will find that by the time you have collated your factors, worked out an equation or two, shoved in some logarithms, and got the exact exposure for your "sunny noon," you will just be able to give it to "dying day" or "twilight," and the result will be that which some people call a "failure," others a "nocturne." Well, having made your exposure, you go ahead, find another view, and focus up, and, as you prepare to reinsert the dark slide, the pleasing feeling steals over you that you don't quite know whether you have exposed No. 1 or No. 2, and you are face to face with the possibility of making two exposures on one plate. Lives there the photographer who has never done this? Many a glorious failure has fallen to my share through it.

I well remember one. I went to pay a farewell visit to a very particular friend of mind at a country house—one of those nice old-fashioned houses that one learns to love and strives to live up to. And my friend had just sold it; and he wanted a view of it from one particular point from which it had never been taken. He meant to cherish that view, and perchance to weep over it, as did his wife and family. I took it, I also took my very best group, the family party tumbled into one of the most happily composed tableaux possible, a special feature being the big mastiff which posed itself in an attitude of protecting gentleness over the youngest olive branch, aged three, who was squatting on the ground. I took it and went off for a month's holiday in Cornwall. My friend left his house, and he and his family looked forward to my photograph of it to console them for its loss. In happy confidence I set to work to develop that negative; it came up all right, plenty of detail, rather too much perhaps, till by and by I said to myself, "Well, this is odd; I never knew before that this house had a cupola on it. I know it had a mortgage—but a cupola!" Ah, well, you guess the sequel; the two pictures were on the same plate, and my friend's bald head was that cupola!

Now this is a source of failure, that camera makers do their best to encourage by numbering the slides in microscopic figures, and in a place where it is most difficult to see them. It is easy, of course, to paste a bit of paper bang in the middle of the shutter with a half-inch number upon it, but I don't recommend it. A figure of that size can hardly fail to catch the eye, and then this source of failure is minimised. Now, proud as I am of my achievements in the way of taking two negatives on one plate, I never got beyond that, I never took three or four. A friend of mind holds the record, he took eighteen on one plate! It was done with one of those magazine hand-cameras that *can't* go wrong, and this one proved it by leaving one plate in register the whole time, though my friend had worked the pump-handle till the machine indexed eighteen. Unfortunately, he found it out as soon as he opened the magazine instead of attempting to develop the other seventeen first, which is what would have happened to me. Then there is another thing you can do—at least I have done it, so I do not see why you should not—you can pull out the wrong shutter of your dark slide and expose the plate that is *outside* the camera, instead of the one that is *inside*.

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* A paper read before the Richmond Camera Club.

Twice have I done this, and each time I was out with a party and somebody hailed me, and distracted my attention just as I was groping for the catch of the shutter. This is an argument in favour of photographing in flocks—it promotes failures as much as most things, which is doubtless the reason why the outings of the R.C.C. are so well attended. The prettiest pastoral I ever took was this last spring, down in Somerset—a mare and foal: mother, a shaggy Exmoor pony: foal, audacious and leggy; a half-open gate, and a Somerset stone wall—a picture ready made, and I took it with an Ideal hand-camera, borrowed from the friend with whom I was staying. That was the picture I should have sent to Pall Mall and it would have made my name. The one drawback to it was, that I took it on an empty sheath instead of on a plate, and my name is still unmade! I mention this failure not as claiming personal credit for it, but as an instance of the unsuspected corners in which failure may lurk. The owner of the camera filled the sheaths for me and only filled eleven out of twelve.

There are many other ways I might mention of failing in the field—I have but sampled them; but I think it is time we got home and started developing.

First, let me advise you not to test your dark-room light. Sooner or later you will find out by experience whether it is safe or not, and think of the failures you may get meanwhile. I began my photographic work with an unsafe light—that is, I had a lamp with an orange glass and a screen of yellow fabric. It was all right so long as both were down, but I was accustomed to raise the fabric when development was half through (I had been told it was the right thing to do, and I believed it), with the result that I fogged many a negative of goodly promise, besides getting myself into a pernicious way of under-developing—for it was long ere I suspected my light—to try and get the operation over before the inevitable fog set in. When at last I had it pointed out to me that the light was unsafe, jumped to the other extreme, mistrusted *all* kind of light and got some very high-class failures in that way. For instance, I have on more than one occasion attempted to develop a plate with its face downwards, and not discovered the mistake, owing to my fear of light, until too late. Or again, I have used a wrong solution in making up my developer—hydrate of soda, for instance, in mistake for bromide of potassium. In fact, it is almost as easy to fail through having too little light as through having too much. My advice to you, therefore, is to go to one extreme or the other and to please yourself which. Talking of light, I may just mention an excellent kind of box for lantern plates I have lately come across: it holds three dozen, and is constructed on the double drawer principle. It is impossible either to get at your plates or to shut the box up again without using two hands; the consequence being that you stand a very good chance of leaving the box open, turning up the light, or burning a bit of magnesium ribbon and spoiling, perhaps, thirty-five plates at one swoop! But after all, in lantern slide making, complete and utter failure is scarcely possible. You may fail—yes, you MAY fail to get a good slide, but you can always boil the result and make a cover-glass of it, which is an essential part of a good slide. But without going into full details of all possibilities in the way of dark-room failures, let me say generally that you will find it highly conducive to the results we are considering, besides saving a deal of trouble, if you keep your dark-room as untidy as possible; do not dust it, or allow it to be dusted; do not wash dishes or measures oftener than you feel inclined (which will not be often, if you are made my way); leave stoppers out of bottles, and if you spill chemicals do not trouble to clean them up; give your hypo and your dry pyro a fair chance to spread themselves—do all these things as consistently as possible, and you will be promising candidates in any failure competition.

It may, however, be objected that the kinds of failures I have alluded to are such as beset beginners; older workers and more experienced don't do such things. Well, that I cannot wholly admit, for did not our President himself make two exposures on one plate only last summer (although, as you saw last lantern night, he did it so cleverly that, instead of two photographic failures, he produced one photographic joke). But at any rate you older workers need not despair of failure—*wholesale* failure—if only you will go the right way about it. You may, for instance, start for a tour—preferably a foreign tour—equipped with new apparatus (let it be costly, to enhance as much as possible the value of the fiasco)—apparatus which you have not tried—and you may take films instead of glass plates, and films too of a make you have not used before, and of whose speed you are ignorant; and you may go into ravishing scenery and quaint old mediæval towns; and you may come home and betake yourself to your dark-room full of delightful anticipation of visiting in fancy the pleasant scenes once more, as each successful negative recalls them; and you may produce a failure after failure, till your heart grows sick, as mine did! It needs no tyro to do this thing. I was no tyro, and I did it—and one and all of you may do it—if only you are big enough fools!

Exhibitions.

SOCIETY.	ENTRIES CLOSE.	OPENS.	CLOSES.	ADDRESS OF SECRETARY.
Toronto (Canada) Camera Club	Jan. 8	Jan. 12	Jan. 14	
Louth	—	Jan. 26	—	S. Francois Clarke, L.D.S., 8, Upgate, Louth.
Cleveland Camera Club ...	Jan. 25	Feb. 1	—	J. J. Hallam, 11, Amber St., Saltburn-by-the-Sea.
Rotherham Photo. Society..	—	Feb. 7	Feb. 8	H. C. Hemmingway, 6, Stanley St., Rotherham
Durham City Camera Club...	Feb. 3	Feb. 14	—	R. Hauxwell, The Avenue, Durham.
Torquay Photo. Soc.... ...	Feb. 3	Feb. 14	Feb. 18	H. C. Howell, Nutley, Torquay.
Woolwich Polytechnic Phot Soc.	—	Feb. 16	Feb. 18	W. Dawes, 145, Chesnut Rd., Plumstead, Woolwich.
Holborn	—	Feb. 18	Feb. 20	F. J. Cobb, 3, Albion Grove, Barnsbury, N.
Manchester Amateur Photo. Society	—	Feb. 21	Feb. 25	Randolph Gilmore, 1B, Cooper Street, Manchester.
Fillebrook Atheneum ...	Feb. 20	Mar. 1	Mar 2	J. W. Spurgeon, 1, Drayton Villas, Leytonstone.
Forfar, N.B.	—	March	—	
Philadelphia (U.S A.) Phot Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.

WEST LONDON PHOTOGRAPHIC SOCIETY'S EXHIBITION.

A BRIEF look round at the above exhibition leaves us with a very pleasant impression of the quality of the work shown. The number of the exhibits is small, but we do not remember a suburban show where the pictures attained so high an average of merit.

There are very few things which can be called bad, and only some which are poor, and, on the other hand, there are many works unmistakably meritorious. This is only what might be expected from a society which includes amongst its members several well-known and successful photographic workers.

The Society is fortunate in having at its disposal a comfortable and well-lighted room, and an executive who from all appearances is quite abreast of the times and in sympathy with modern feeling. This is seen in the abolition of classes in the exhibition and the entirely free hand given to the judges in respect to awards. The Society's bronze medal is provided, just so many or so few as the judges may see fit to distribute, so that a picture winning a bronze medal means not that it is best of a kind or class, but that in the opinion of the jurors it is deserving of distinction. The same arrangement is made for lantern slides, and in addition the President provides a silver medal for the best and most artistic picture, and Mr. Walter L Colls offers another for the best thing taken during one of the Society's outings.

The appointed judges were Mr. F. C Dollman, Mr. England, and Mr. A. Horsley Hinton, but as Mr. England was unable to attend, one might have expected that the purely artistic would have received chief recognition. The judges, however, were possibly influenced by the consciousness that good technique properly directed is a powerful factor towards artistic excellence, and were consequently not disposed to overlook it when met with.

In looking round at the pictures, which are very creditably hung, we notice a quite remarkable absence of figures, portraits, and architectural subjects, by far the greater number being landscapes and general out-door scenes. We have, however, a very careful and technically excellent interior, by Mr. Boucher, of "Hampstead Church," and a fair portrait study by Miss Brigg; "A Welsh Cottage" by the same lady is a very pleasant, unconventional bit delicately treated. In the Hon. Secretary, Mr. Lionel C. Bennett, the Society has an admirable worker of strongly defined artistic tendencies, of which his four or five pictures shown here are good evidence. "In the Pool" was shown at Pall Mall last year, and was reproduced by us in "Photographs of the Year." "Cress Gatherers," and "September" are of a very different character, the former a delightful bit of open reedy country, nicely composed. "Rejoining the Ship" and "Road to the Farm" are perhaps not quite so good, but well worth notice. "On the Basingstoke Canal," by Mr. Walter Colls, which was shown at the Camera Club recently, is a pleasing waterside landscape. This exhibitor, however, is less happy in his groups of children, etc., which are also hung here. A very noteworthy picture, and the one to which the President's silver medal is awarded, is "A Frozen Swamp," by Mr. J. J. Adams—it is a very delicately treated landscape full of soft light and guileless of heavy shadow; the white frosted ground is preserved in very correct relation with the surroundings and the distance. We think the sky should be a little

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lower in tone, a little less white. With this picture are two smaller ones of similar wintry subjects, but not perhaps quite so carefully carried out. Mr. Adams would have been well advised had he been content with these contributions to the exhibition, the several small figure subjects being wholly unworthy and trivial. We should have liked to have seen the medal picture better supported, the half-dozen cycling subjects would reduce the *average* merit very seriously. The next screen is chiefly occupied with several familiar little pictures by Mr. J. A. Hodges, who, however, in "Drear December" has made so great an advance, and produced something of entirely different manner that it would be difficult to recognise the author's hand. A group of fir trees rises through thick mist against a grey sky, the foreground being composed of bramble bushes and grass all whitened by a thin mantle of snow; very simple the materials, yet decidedly effective in result. We understand this ran the silver medal picture very close—neck and neck, we should have thought. Further on, our eye lights on "A Sluggish River," etc., by Mr. G. Lamley, which we have on a previous occasion favourably noticed and reproduced in "Photographs of the Year." With it are several other very charming little landscapes by the same hand, and we would select from these "Solitude" as particularly nice. Mr. S. Rogers shows excellent taste in seleetion of subjects, and not the least observable feature in his eight little pictures is the discreet manner in which prints are trimmed down to suit the requirements of each subject. Thus "The King's Highway" and "Browsing" are mere tiny slips, but any addition would have spoiled them. "The Year is Dead," also by Mr. S. Rogers, and for which he received a medal, has delightful feeling, and is very unconventional in selection.

Mr. H. Selby and Mr. Leslie Selby have both several careful little photographs, the latter erring in some cases in an unpleasantly red colour. Mr. T. Tripplin's numerous views in Norway are excellent examples of holiday views, but neither in selection nor treatment do they rise to much more. In "My Mother," a large portrait, apparently a bromide enlargement, Mr. Winter has a finely modelled, nicely lighted study of a head.

Besides the above named there is a screen devoted to previously medalled, non-competitive pictures, amongst which we recognise many a familiar work.

In lantern slide work the West London Society does not seem to have made as much advance as in picture work. Still, there are several good sets, those receiving medals being unquestionably the best.

REPORT OF THE JUDGES.

The judges are very pleased with the exhibition as a whole. Comparing it with other private exhibitions, they find there is a much higher average of pictorial excellence, and this has enabled them to work from a higher standard. They feel bound to say that amongst suburban photographic societies the West London is a long way ahead, and some of the work shown they greatly admire.

The judges would like to add that, while looking at the pictures, they felt they were judging works which combined pictorial qualities with the technical excellence of good photographs.

There was a tough contest as to whom should be given the President's silver medal, the winner being very closely pressed.

The judges' awarded as follows:—President's silver medal: "A Frozen Swamp," James J. Adam. Outing silver medal: "Near Weybridge," Leslie Selby. The judges wish it to be distinctly understood that they do not consider the entries in the Outing Class are any of them deserving the distinction of a medal, but as they are asked to award a silver medal, they consider "Near Weybridge," Mr. L. Selby, the best of the class. They would like to add that they only award this medal feeling themselves bound by the printed conditions, which leave them no option but to award a medal to work which they consider deserving or otherwise. Bronze medals: "Drear December," John A. Hodges; "In the Pool," L. C. Bennett; "Altar, Hampstead Parish Church," A. A. Boucher; "Solitude," G. Lamley; "My Mother," C. Winter; "The Year is Dead," W. S. Rogers. Bronze medals for lantern slides: J. E. Kellow, H. W. Peal, G. E. Varden.

DERBY PHOTOGRAPHIC SOCIETY.

A CAPITAL exhibition of photographs was opened on the 4th inst. The pictures hung numbered 367, and included some of the finest amateur works which have ever been brought together in this or any other town. The specimens included a set of grand platinotypes by Mr. A. H. Bennett, which won the silver medal presented by Mr. W. Bemrose, J.P., as well as the series by Mr. F. E. Bemrose, which gained the bronze medal given by Dr. Rooney. Mr. J. Riches' collection gained the certificate given by the society, and were also capital pictures well deserving the award. We might mention that the merits of the exhibits were decided upon some time ago, the judge being Capt. Abney, the President of the society. Mr. Councillor W. W. Winter exhibited a number of large photographs, which were very much admired, especially "Galatia" and "Maggie." Mr. R. Keene had on view some excellent architectural studies, whilst leaving the professional pictures and coming to the amateur views, Mr. E. C. Green's large collection were very deserving of notice. They were principally land and seascapes, and were highly finished works of an enchanting art. Mr. J. Scotton's locomotives (silver print process) were highly meritorious, as all this gentleman's works are, whilst Mr. T. Scotton's views of interiors of Midland Railway buildings were admirable. Mr. J. Flint's "On the Trent," as well as his photograph of the fountain in Derby Arboretum, were striking pictures, taken with care, and Mr. J. Eastwood's frame of eight included a magnificent portrayal of the interior of Lichfield Cathedral. Mr. F. G. Thurgood had some capital views hung, all well-known local scenes, and Mr. T. Scotton's picture, "A Heavy Load," was another work which could not be passed without notice. The same gentleman had "A View near Barnt Green," which demanded attention. Next came some really excellent fruit by Mr. S. C. Riley, with some high-class amateur work by Mr. A. B. Hamilton in platinotype. The same exhibitor has an amusing series of small works, entitled "Where are you going to, my pretty maid?" Another fine picture is "Honfleur." Views of Derbyshire are shown by Mr. C. H. Rourdin. The pictures which won the medals are specimens which speak for themselves, but Mr. Bennett's are undoubtedly the best. Mr. Riches' come very near the winner's, and his efforts well deserve the reward they obtained. All the other works are quite up to the average, and we must not omit to mention those of Mr. G. Walker and Mr. J. Fleet.

On Wednesday evening the medals were awarded by his worship the Mayor (Mr. Councillor W. H. Marsden), in the presence of a large number of ladies and gentlemen, including Messrs R. Keene, T. Scotton (hon. sec. to the society), J. Scotton, A. B. Hamilton, W. Wilkinson, etc.

Mr. Keene, who took the chair, said he hoped the exhibition would be appreciated, and remarked for the information of those present that the whole of the work exhibited was the bona-fide production of the members of the society.

The medals were then handed to the winners by the Mayor, who made a happy little speech.

During the evening a number of views taken by members of the society were exhibited by the aid of a powerful lantern, and some very interesting moonlight scenes by Mr. A. B. Hamilton were very much appreciated.

◆

Societies' Notes.

THE Forfarshire Photo Exhibition will be held in Forfar in April, and will probably be opened by Sir John Rigby, the Solicitor-General. Several medals and awards will be offered, and the classes will be open to all comers. Entry forms, conditions and rules may be had about the 28th of this month from Mr. W. J. Anckorn, West Port, Arbroath, N.B.

◆

THE Photographic Society of Ireland will hold a competitive exhibition of members' work and exhibition of pictures, etc., on Monday, 16th inst., when a conversazione will be held, and the Lord Lieutenant will be present, together with numerous other distinguished visitors. Apparatus and trade exhibits are also promised in goodly numbers, and the prospects are decidedly favourable to a big success.

◆

WE have received the annual report of the Birmingham Photographic Society, which speaks very well not only for the financial position but also for the solid work done during the past year We note that it is intended to hold an exhibition of members' work, with twenty-six classes and plenty of prizes, early in the year.

◆

Photography in Research.—An instructive lecture was given recently by Professor Nichols, of Cornell University, before the Brooklyn Institute, on the use of photography in research work. In this he dealt largely with electrical research, showing photographs of electrical discharges and electric arcs. The photographs of the arc revealed some phenomena not perceived by the naked eye. Among these were the brilliant particles thrown off by the arc, and also the superior actinic effect of the aro when copper-coated. A photograph of an arc on an alternating current circuit showed a succession of flashes, proving the intermittent character of the arc produced under these conditions. Photographing the reversals of current shown by a telephone diaphragm were not so successful as the method adopted of allowing a stream of mercury as conductor to pass between the poles of a magnet; this showed vibrations corresponding exactly to the reversals of the current, the curve produced being the sinuous curve expected.

Societies' Meetings.

Croydon (Camera).—On 2nd inst., the President in the chair, who opened a well-sustained discussion on "What is *now* the best printing process?" in favour of bromide paper. Messrs. Oakley, Packham, Letts, Sampson, Hirst, Carden, White, and Neeves took leading parts in advocating various processes, and a vote being taken, platinotype and gelatino-chloride tied for first place, bromide being a good second. A large collection of prints were shown on the new staging lately erected for the purpose of efficiently exhibiting mounted photographs, including some fine specimens kindly lent by Mr. A. R. Dresser.

Croydon (Microscopical).—On January 6th a paper and demonstration by Mr. S. G. Buchanan Wollaston on "The Capabilities of Platinotype." Dealing with the new cold-bath process, he compared it with the late hot-bath, and pointed out that most of the disadvantages and defects of the latter had been got rid of. The various methods of utilising this power for strengthening the foreground, subduing distance and clouds, and for producing a vignette were very successfully demonstrated by the lecturer.

Dorset.—The annual meeting was held on 2nd inst. The outgoing officers were re-elected, namely:—President, Rev. W. Miles Barnes; Hon. Sec. and Treasurer, Rev. T. Perkins; Committee, Rev. E. J. Pope, Messrs. D'Aeth and Skene. The Treasurer's report showed a good balance. The quarterly prizes given for the best sets of prints contributed to the albums circulated during the past year have been awarded to Rev. T. Perkins, Mr. Skene, Miss Skirrow, and Mrs. Perkins. A special prize given by Mr. Skene for a single print fell to Mr. D'Aeth, and the prize for the best set of six lantern slides shown at the meeting was awarded to Mrs. Perkins.

Harringay.—The inaugural meeting of the Harringay Photographic Society was held on 5th inst. The chairman (Mr. Dudley Towers) in a few introductory remarks showed the need was great for a society of this kind in this centre of photographic activity. It was proposed that a library be started, and that ladies should be eligible for membership. The rules for the management of the society were drawn up, and the following officers elected: President, Mr. D. Towers; Vice-President, Mr. Bennett; Council, Messrs. N. Watson and F. Baily; Hon. Secretary and Treasurer, C. Frith, 8, Cavendish Road, N., from whom all particulars may be had.

Kensington and Bayswater.—A meeting was held, Mr. G. Bursnell presiding. Mr. S. G. Buchanan Wollaston gave a practical demonstration on "Cold-bath Platinotype Paper."

Lewisham.—On 6th inst. Mr. E. Eastwood gave a practical demonstration of "Collodion Lantern-slide Making." He said that in making collodion, everything depended on getting the right quality pyroxyline (high temperature). The plates before coating should be edged with indiarubber solution, to keep the film from slipping off. For exposure he used one inch of magnesium ribbon at two feet, showing what an economical method that was, as, in printing from quarter-plates, about twenty could be ranged round, and exposed together. The plates were placed in alcohol and rinsed till all greasiness had disappeared and were then developed with pyro and hydroquinone respectively, in both instances getting very rich tones, which he varied by placing in a gold bath. He said that by making your own collodion, lantern-plates would cost under twopence per dozen. He recommended any one who wanted further information to read the capital article by Lewis Medland in this year's "News Almanac."

North London.—On the 3rd inst. special general meeting, Mr. J. Traill Taylor in the chair. It having been thought desirable to remove the Society's quarters for the sake of the greater convenience of the members, a sub-committee had been appointed, and upon their report, which had been circulated to the members, it was now resolved that the meetings should in future be held in rooms which had been arranged for at Canonbury Tower, Canonbury Square. First meeting at new quarters, Tuesday, the 17th inst., at 8.15 p.m. Mr. W. Bishop, the Hon. Sec., having found it necessary to resign his office owing to pressure of other engagements, Mr. W. T. Coventon was unanimously asked, and consented, to take the post, a vote of thanks being passed to the retiring Secretary. Mr. Coventon's address is 50, Highbury Park, N.

Oxford.—At the meeting held on January 3rd the President read a paper on "Gelatino-chloride of Silver Paper and its Manipulation." Notwithstanding the inclemency of the weather, there was a very fair attendance of members. The paper was throughout eminently practical, and all present were much interested in the sound information to be gleaned from the lecture.

Rochester.—A meeting was held on 3rd inst., when some prints and slides (Peak and Dale) kindly lent by the Editor of the AMATEUR PHOTOGRAPHER were exhibited. It was regretted that time did not allow the members to examine the quality of the excellent prints so minutely as they would have wished to do. Both the prints and slides were highly appreciated by all present.

Rotherham.—Monthly meeting on 6th inst., Dr. Baldwin (President) in the chair. Good attendance of members. Several frost views were shown, as well as Hurter and Driffield's Actinograph. The annual exhibition on the 7th and 8th February was referred to, the Hon. Secretary announcing that Lady Abreda Fitzwilliam had consented to open the proceedings. The exhibition, although non-competitive in its character, promises to be most interesting and photographically successful. An appropriate paper on "Preparing for the Exhibition" was afterwards given by Mr. E. I. Hubbard, Vice-President.

Sheffield.—A meeting was held on 3rd inst., Mr. B. J. Taylor in the chair. The pictures and negatives sent in for the annual competition were fully critised, and the prizes awarded to Mr. W. M. Toplis and Mr. J. W. Blackwell, after which the Secretary distributed the prints sent in for the monthly exchange and the meeting terminated.

Tunbridge Wells.—A meeting was held on the 5th inst., Mr. E. R. Ashton in the chair. The principal feature of the evening was the viewing on the screen of the National Lantern Competition Slides; they numbered 300, and were selected from the 942 that were sent in, comprising architectural landscape, figure studies, copies of engravings, and microscopical subjects. Members invited friends to see the slides, which they much appreciated; but in consequence of the round of gaieties taking place, there was not quite so large a gathering as was expected.

West Kent.—On 29th ult. the President (Mr. Andrew Pringle) gave an explanation and demonstration of the theory and practice of making gelatino-bromide emulsion. Having described the processes in general terms, and explained the lines on which the operations are performed, he proceeded to make an emulsion, first with soluble bromide and silver nitrate, and then with ammonio-nitrate, explaining the advantages and disadvantages, in his opinion, of each process. A description was next given of the various methods used for eliminating the bye-products of the decomposition, and apparatus was shown illustrating these methods. The methods of "cooking" or digesting the emulsions were then described, and their respective practices discussed. Filters and drying presses were described, and finally a plate was coated, the speaker stating that in his opinion very few commercial plates were coated thickly enough with the emulsion, but that in these days of keen competition among manufacturers economy must be observed somewhere. Except that throughout the address gas-light was used, the ordinary manipulations of emulsion making and plate coating were gone through, and the members expressed themselves highly interested in the whole demonstration.

York.—On 4th inst. annual meeting. The Secretary's report was of a satisfactory nature, showing increased attendances at the meetings and an improvement in the quality of work exhibited thereat. The officers were elected as follows:—President, F. Vincent; Vice-President, A. C. Hick; Treasurer, R. Bainbridge; Council: Messrs. Saville, Hirst, Dickinson, Ogden, and Hollins; Hon. Sec., F. G. Benson, 50, Scott Street, York. Some little disappointment was felt at the non-arrival of the Hull Society's loan collection of slides which had been arranged to be shown at this meeting.

SOCIETIES' FIXTURES.

Jan. 14.—HULL.—Slide Exhibition.
,, 16.—RICHMOND.—"A Comparison of Printing Processes," Mr. G. W. Ramsay.
,, 16.—S. LONDON.—"Isochromatic Photography," Mr. E. J. Wall.
,, 16.—KENSINGTON AND BAYSWATER.—"Development by Amidol," Mr. Morgan.
,, 17.—W. LONDON.—Technical Social Meeting.
,, 17.—N. SURREY.—"Enlarging," Mr. H. Senier.
,, 17.—HEXHAM.—First Annual Meeting.
,, 17.—BLACKHEATH.—"A Trip to Norway," Mr. W. C. Chaffery.
,, 17.—BUXTON AND CLAPHAM.—"The Hand-Camera and its use in Picture-making," Mr. W. Thomas.
,, 17.—HACKNEY.—"Lantern Slide Colouring," Mr. S. J. Beckett.
,, 17.—EAST LONDON.—Second Annual Dinner, and Presentation of Prizes by Mr. A. Horsley Hinton.
,, 18.—THE PHOTO CLUB.—"Glass, and Fabrics for Dark-Room Illumination."
,, 18.—EASTBOURNE.—"Hand-Cameras," and Lantern Slides made from Negatives taken with the same.
,, 18.—WAKEFIELD.—"Printing Frames and Vignetting."
,, 19.—HULL.—"Photo-Micrography," Dr. Hollingworth.
,, 19.—GLOUCESTERSHIRE.—"AMATEUR PHOTOGRAPHER" 1892 Prize Slides.
,, 19.—LIVERPOOL (A. P. A.).—Lantern Night.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

Rules.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume.*
4. All matters for these columns MUST be received by TUESDAY MORNING'S Post.
5. The Editor does not undertake to answer questions by post.
6. In answering Queries, correspondents are requested to mention, in every instance the *number and full title of the query* referred to.

QUERIES.

Correspondents not seeing their queries inserted are requested to look for the same under "Editorial."

QUERIES UNANSWERED.

Nov. 25th.—Nos. 5880, 5881.
Dec. 2nd.—Nos. 5886, 5890.
,, 9th.—No. 5894.
,, 16th.—No. 5900.
,, 23rd.—Nos. 5902, 5903.
Jan 6th.—No. 5905, 5906, 5907, 5908, 5909.

ANSWERS.

5904. **Hanover.**—Ilford plates, ordinary and iso., and papers, are to be had at Sigmund Federlein's, 2, Louisenstrasse. As half-plates, for example, cost 3·12 marks (3s. 1½d) a dozen, and celluloid films *in England* only about 3s.6d., I should strongly advise bringing the latter with you. The weight of the glass would make your travelling costs ruinous on your return, not to mention the chance of breakages. All chemicals can easily be got if you give the correct symbol when ignorant of the German name. The exposure will differ very slightly from that in England. Glad to give you any further advice. Editor has address.—Brunswick.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be* **left over** *each week This we much regret.*—Ed. Am. Phot.

A. Mitchell.—Many thanks for your letter. We shall be pleased to see print and criticise same, and to loan you slides at any time.

H. Holt.—Very glad to be able to congratulate you. The quality of the two slides was excellent, so even. Hope you will go for some big competitions now.

W. S.—There is no objection to your reversing the lenses in the way you suggest, except the bother of getting at the stops. The lenses will act the same.

A. H. Bradburn.—The spots you complain of are due to air bubbles, and can be got rid of by squeegeeing more thoroughly. Use the scraper and not roller squeegees.

Oscar.—The print you send is rather over-printed and over-toned. Send stamped addressed envelope, and state what you are prepared to spend, and we will write you.

W. E. A.—You can have any number of prints you like to look at, but we cannot sell you any. If you write a formal application stating whether you want sea or land scapes, or portraiture, and size, we will see what we can do.

W. H. Pratt.—Many thanks for good wishes.

J. N. K.—To enlarge from 5 by 4 negatives you will require 6½ in. condensers, and 7 in. would be better.

F. G. Benson.—No, others might follow your example, but when you get a good paper read, let us have it, and we will send you extra copies.

Trix.—(1). It is not absolutely necessary to use the combined bath; the acetate will tone well, provided the prints are well washed first. We have used the paper and like it. (2) Yes, the paper named is as good as any. We have been unable to make any arrangement yet, but hope to this week. Thanks for good wishes; same to you. (3) Yes, we will try lens for you, and per return. An R.R. is the best all-round lens.

H. M. W.—If you will take our advice, you will spend as much money as you possibly can on the lens and less on the camera. We will write you by post, however.

J. G. P.—Probably the fault in your apparatus is partly in large expanse of flame presented to the condenser, partly to the small light-grasping power of the objective due to the small diameter of the back lens, and partly also to curvature of the field of the objective. We cannot say that the apparatus you name is absolutely free from this defect. You can improve matters by obtaining one of Chadwick's triple condensers, and a special projection lens with very flat field such as the "Optimus" lantern objective. Curving your paper as described on p. 317 of the Amateur Photographer, April 22nd, 1892, will also help you. We will, however, try and test an idea we have on this subject, or if you are open to experiment we will write you by post.

R. E. A.—(1) Too strong an alum bath will harden the gelatine so as to make it almost impermeable to water. We presume you wash well between the alum and toning bath. (2) Duration of printing is governed by the density or opacity of the image, by the absence or presence of yellow stain, and by the colour of the image. Provided it is not too long, slow printing gives the best results.

Mona.—We should say that you are not developing long enough. Can you send us up some negatives to look at? As the paper you use gets colder in tone, on drying there is no reason why you should not stop toning when all the red has disappeared from the print except in the deepest shadows; you will then have pleasanter tones. Your work is quite good enough for our large competitions. Hand-camera work includes time exposures with the hand-camera.

X. Y. Z.—The whole-plate lens will not require stopping down so much.

F. W. Barfoot.—(1) No. The subscription must be sent us direct. (2) We do not think it fair, but there it no regulation against it. and if you like to write us a letter we will insert. (3) We believe hydrochloric acid 1 oz., chrome alum 1 oz., water 20 oz., is about right. Why not use hydrofluoric acid?

Leonard.—We believe either Henry Park or Platt and Witte can supply the leather paper in small quantities, or if not, try Bury and Roberts, St. Bride Street, or Spicer and Son, Upper Thames Street, or any wholesale paper makers.

T. C.—(1) Too much foreground and not enough sky. (2) Road too white, wants clouds, and the figure is out of place. (3) Printed just a trifle too deep, but good otherwise, except for cutting the house in half. (4) The figure is dreadful; do not try this sort of thing again, please. (5) Slightly over-printed, otherwise good. (6) Good. Try especially for artistic bits; your technical work is very fair.

R. W. C.—(1) Print flat and foggy; paint out the boughs of trees and put in some clouds, and you will have a nice little bit. (2) Printed far too deep, too black and smudgy. (3) No pure whites, and not enough interest in it. What paper are you using? Write again, and let us see some more work.

Stereoscopist.—Your slides are of good quality, and the river scene artistic, but the other is not. A little more softness would not be amiss; they have a tendency to snowiness.

H. Hall.—(1) Either a Crouch, Wray, Taylor, or Beck's lens would suit you. (2) Single slides, write to Chadwick, 2, St. Mary Street, Manchester. (3) Thornton and Pickard time and instantaneous. (4) Biconcave lenses may be had from almost any dealer, and mounted as ordinary finders; they cost about 2s. 6d. (5) The shutter should fit the lens tube, as this will require a smaller size.

F. J. Thornton.—Use your R.R. lens, and as large an aperture as you can. Arrange your group in a circle, that is with the sides nearer camera. We should think about 24 in. of wire burnt at each side of the camera, and waved about, would do with rapid plates.

A. Mancunian.—Why not use a single lens of exactly the same focus for the finder lens? You could arrange this without any trouble, and if the lenses were not exactly of the same focus, you could allow for it in the mounting, you could obtain a single lens for a few shillings. You can allow a little space between the mirror and plane of the sensitive plate, but you must of course make your camera deeper, so as to make up. The secret is that there must be exactly the same distance between lens, mirror, and screen as there is between lens and plate. We do not know of any work treating exhaustively of the principles of reflection, but will turn up and let you know.

G. B.—The best way is to mount the opals, sunk behind a plush mount, which may be obtained from most dealers.

Weetley.—We regret that we cannot do as you request. If you subscribe direct, you get your paper early, and the annual as well.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for Fourpence. Every additional three words, one penny. The name and address of the sender must be paid for. (A single figure, or group of figures undivided by letter, space, stop, or words, counts as one word; compound words count as two words.)*

DEPOSITS.—*The money for goods forwarded on approval may be deposited with the Publishers of the* Amateur Photographer, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of* 3d. *to cover postage.*

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* Amateur Photographer, 1, *Creed Lane, London, E.C."*

COMMISSION.—*A charge of* 2½ *per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge* 1s.

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

REPORTING.—*Apparatus may be sent to the* Editor, Amateur Photographer, 1, *Creed Lane, London,* ***E.C.,*** *who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.,*** *or a commission of* ***2½ per cent.,*** *upon the sale price of the apparatus.*

Cameras, etc.—London Stereoscopic Company's 5 by 4 Artist's camera, tripod, accessories, half-price, bill shown, £7; used only one day; guaranteed; illness (not infectious) of artist only cause for sale.—Address, 32, Fern Grove, Liverpool.

Whole-plate camera, extends 18 in., closes to 3½ in., swing back, rising front, rack adjustment, reversing back, two double slides, quite new, approval, £4; particulars per post.—D. Padgham, 67, Psynton Road, Silverhill, Hastings.

Cameras, Lenses, etc.—Key camera, lens, view finder, six double backs, in perfect condition, price £5 10s.—H. F., Camera Club, Charing Cross Road, London.

Dark Slides, etc.—Three quarter-plate double backs (Loman's), made to fit their Reflex detective camera, 24s., good as new.—Pratt, East Bridgford, Notts.

Three best quality half-plate double slides, 25s.—59, Keppoch Street, Cardiff.

Hand-Cameras, etc.—For sale, No. 1 Kodak and enlarging lantern for same, £6, or offers.—M. Griffiths, 1, The Grange, Highbury, N.

Adams' Ideal hand-camera, cost £7 net, price £5, nearly new.—J. Grose, jun., Market Street, Falmouth.

Lantern Apparatus.—First-class brass lantern front, with front lens and 4½ condenser, bargain, 50s.—59, Keppoch Street, Cardiff.

4½ in. compound condenser in brass cell, replaced by a triple and good mixed jet, replaced by a mechanical stage jet, both equal to new.—B. J. Grover, 36, Woodbury Down, N.

Lanterns, etc.—Exhibition lantern, full size, take 26s., cost £3, bargain.—Milburn, Photographer, Hexham.

Pair oxy-hydrogen lanterns, bronzed bodies, 1¾ in. objectives, 4 in. focus, compound (double convex and concave convex) condensers, 4 in. diameter, 4 in. focus, blow-through jets, six way dissolver and rubber tube, in painted lock-up travelling case, £4 10s., or offers in modern half-plate R.R. lenses by Dallmeyer, Ross, or Wray, Ashford tripod, or twin lens focussing hand camera suitable for 6 in. lenses.—Whitehead, 141, Manchester Street, Oldham.

High-class single mahogany limelight lantern, solid brass fronts, pull-out lenses, brass rail handles and curtain rod, Archer's jet, cabinet, two compartments, and tilting lid, price £13, will accept £7 to clear, or offers in exchange.—Frank Lobley, Hanley, Staffordshire.

Lenses, etc.—Half-plate portrait lens, rack and pinion. What offers? Approval.—Benjamin Harrison, Park Road, Claremont, Heckmondwike, Yorkshire.

12 by 10 wide-angle rectilinear, 70s.; Taylor's 8½ by 6½ wide-angle rectilinear, 45s.; 7 by 5 rapid rectilinear, 22s. 6d.—59, Keppoch Street, Cardiff.

Half-plate rapid rectilinear, Waterhouse stops, new, 13s.—Miss Summers, Hillesley, Gloucestershire.

Wray's wide-angle rectilinear 9 in. focus, with iris diaphragm, f/16 to f/64, in perfect condition, only used a few times, will cover up to 14 by 10, price £3 16s. cash (list price, £6).—H. W. Bennett, Dacre House, Arundel Street, London, W.C.

Rolling Press, half-plate, in excellent order, cost £2, will take £1.—No. 360, office of this paper, 1, Creed Lane, E.C.

Sets.—Quarter-plate Instantograph camera, lens, shutter, tripod, three double backs, focussing cloth, canvas case, 45s.—Harold Phœnix, 323, Shoreham Street, Sheffield.

Lancaster's quarter-plate Merveilleux set, extra slide, and canvas case, cost 31s. 6d., for 20s.; three Tylar's half-plate metal slides and screen, cost 12s. 6d., for 9s.; above very little used.—W., 91, Charlton Lane, Charlton, Kent.

Half-plate Underwood's Exhibition camera, Taylor, Taylor, and Hobson's R.R. lens, Thornton-Pickard time and instantaneous shutter, three slides, finder, three-fold rule-jointed legs, cost £10, £7 7s., or camera, lens, and shutter.—H. Lee, Thornhurst, Wolverhampton.

Lancaster's special patent camera, half-plate, one best double slide, rectigraph lens, girder stand, See-saw shutter, almost as new, with few sundries, price 110s.; no approval, but warranted in order and as described.—Davies, Brackenhoe, Marton, Middlesbrough.

Quarter-plate camera, with splendid R.R. lens (Waterhouse stops), reversible swing back, long or short focus, three double slides, stand, and canvas sling bag, all by Sands and Hunter, a splendid little apparatus, light, but rigid, folding candle lamp, measure glass, and three Tylar's lettered pulp trays, only 70s., for immediate sale.—No. 361, office of this paper, 1, Creed Lane, E.C.

Sundries.—AMATEUR PHOTOGRAPHER, April 24th, 1891, to present date, half-price, no carriage, unsoiled.—Hands, Llanberis, North Wales.

Sell lot, or separate. First seven vols. AMATEUR PHOTOGRAPHER, well bound, clean; also "Illustrated Photographer," 1868, 1869, bound; "Art Journal," 1885, bound, as new, and eleven numbers 1884, unbound. What offers?—Costello, 25, Eccles Street, Dublin.

Violin, baize-lined case, and silver-mounted bow for disposal, violin has rich ringing tone and very handsome model, only 17s. 6d. for the violin, bow, case, tuning fork, mute, resin, and a quantity of good and clean music; special opportunity for securing a bargain; satisfaction certain; approval. — Miss Francis, Claremont, 35, Christchurch Street, Ipswich.

AMATEUR PHOTOGRAPHER, first 13 vols., 8 vols. bound half calf, with extra numbers; "Quarterly," vol. 1 and numbers 6, 7, 9, 10; "Societies' Reporter," vols. 1 and 2; "Photographic News," 1884, bound; "Magazine of Art," 1889, unbound, £3 the lot.—John Stabb, 154, Queen's Road, Bayswater.

AMATEUR PHOTOGRAPHER, Nos. 191 to 316, three numbers missing, clean. What offers?—H. White, Pembroke Dock.

Lancaster half-plate retouching desk, 5s.; quarter-plate changing bag, 3s.; occarina, 4s.; exchange stamps, etc., rigid waterproof camera case.—Particulars, Waters, 21, Westbourne Park Road, Bayswater.

AMATEUR PHOTOGRAPHER, September, 1887, to December, 1892, unbound. What offers?—Swindell's, 2, Castle Street, Stockport.

Hare's changing box and leather case, cost £6 5s., good as new. What offers cash? Vol. 1 "Photographic Reporter," bound, and 22 numbers "British Photographic Journal," to December, 1892. — S. Keith, 69, S. Clerk Street, Edinburgh.

WANTED.

Cameras, etc.—Want half or quarter camera, etc., in exchange for 8 by 6 studio camera.—Thomas, 1, Grugos Terrace, Port Talbot.

Camera wanted, hand preferred; exchange Underwood's 18s. four-fold oak tripod and an electro-plating outfit.—Yates, 38, Byron Road, Seacombe, Cheshire.

Half-plate camera by reputed maker; also stick stand.—White, Adelaide, Blackpool.

Changing Box.—Wanted, a 5 by 4 changing box for plates or films; also accurately paired half-plate lenses, working *f*/6 or *f*/8. Full particulars required, and approval if necessary. Deposit.—No. 362, office of this paper, 1, Creed Lane, E.C.

Hand-Cameras, etc.—Wanted, hand-camera, with or without lens; state lowest price.—Frederick C. Newland, Kingstown, Dublin.

Rocker. Lewis' Little Giant rocker, half-plate.—B., 60, Parade, Tunbridge Wells.

Sundries.—Wanted, first 12 numbers "Photographic Review of Reviews."—S. Keith, 69, S. Clerk Street, Edinburgh.

Shutter, etc.—Blind shutter, if damaged immaterial; also other photographic oddments, cheap.—Experiment, 55, Chancery Lane, London.

Tripod, etc.—Watson's turntable, also sliding tripod for half-plate camera.—Bernard, 101, Goldhawk Road, W.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Hand Cameras.—Fallowfield's special Facile camera, morocco leather, fitted special rectilinear lens, iris stops, two finders, instantaneous shutter, etc., carries 12 ¼-plates, take £5 10s., cost £8 10s., quite new; Griffith hand-camera, carries 6 ¼-plates, covered leather cloth, good lens, shutter, finder, etc., quite new, 15s.; Lancaster's Omnigraph, ¼-plate, finest condition, all improvements, 15s.; Houghton's Automatic Hand-camera, guaranteed as new, rapid rectilinear, rotating stops, Thornton-Pickard shutter, carries twelve quarter-plates, fine camera, £4 10s. No. 5 folding Kodak, carries fifty-four films, rapid rectilinear lens and shutter, extending leather bellows, covered morocco, finder, etc, £9 9s., cost £13 13s.; Optimus Minimus hand-camera, quarter-plate, for twelve plates, Optimus Euryscope lens, roller blind shutter, two finders, bag changing, covered morocco, finest condition, £4 17s 6d; Talmer hand-camera, carries twelve quarter-plates, fine portrait or view lens, shutter, finder, bag changing, etc., finest condition, 47s. 6d.; Key hand-camera, by Platinotype Company, rapid rectilinear lens, shutter and six slides, size quarter-plate, finest order, £4 12s. 6d.; C Daylight Kodak, rapid rectilinear lens, rotating stops, shutter finder, etc., covered morocco, carries 24 films, quite new, £3 15s.; No. 4 Kodak, as new, size 5 by 4, carries 100 films, fine rapid rectilinear lens, instantaneous shutter, in solid leather case, £7 7s.; Optimus Magazine, very finest order, Optimus rapid rectilinear lens, carries twelve quarter-plates, roller blind, shutter, focussing adjustment, £5 5s; Kodak No. 1, best R.R. lens, carries 100 films, best order, in leather case, 40s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Dallmeyer's 2 B portrait lens, finest condition, Waterhouse stops, rack focussing, take £6 17s 6d., cost £13 13s.; Optimus No. 3 B portrait lens by Perken, Son and Rayment, as new, Waterhouse stops, rack focussing, to cover whole-plate, take £6 15s.; Optimus portable symmetrical, size 9 by 7, rotating stops, covers well, works *f*/11, as new, 65s.; 9 by 7 Optimus rapid Euryscope lens, Waterhouse stops, moveable hood, grand definition, as new, £5 5s.; whole-plate portrait lens, Waterhouse stops, rack focussing, covers well, as new, 65s.; 8 by 5 Ross' rapid symmetrical lens, iris stops, grand definition, quite new, £4 7s. 6d.; 7 by 5 Panorthoscopic lenses by Laverne (Clement and Gilmer), Waterhouse stops, loose hood, latest pattern, as new, 50s.; Shew's No. 2 rapid wide-angle lens, rotating stops, as new, warranted, £2 7s. 6d.; half-plate Lancaster's rectigraph lens, thorough order, covers well, Waterhouse stops, take 32s. 6d.; half-plate Lancaster Instantograph lenses, iris stops, and instantaneous shutter, 15s.; Ross' No. 2 portable symmetrical, rotating stops, 4 in. focus, finest order, 42s.; Shew's C. D. V. portrait lens, rack focus, Waterhouse stops, finest condition, 17s. 6d.; Optimus quarter-plate portrait lens, rack focussing, Waterhouse stops, quite new, 21s.; 5 by 4 Optimus rapid rectilinear, by Perken, Son, and Rayment, Waterhouse stops, 27s. 6d.; Swift 5 by 4 wide-angle rectilinear, 5 in. focus, rotating stops, 32s. 6d.; ¼-plate hand-camera lens, by Laverne, rapid rectilinear, adjustable focus, 15s., quite new. All above lenses are warranted as described.—On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Every description of apparatus bought, sold, or taken in exchange.

Bargains in Cameras and Sets.—10 by 8 camera fitted all latest improvements, back and front extension, for wide-angle pictures, leather bellows, reversing back, rising and falling front, two double slides, grand condition, take £6 10s. lot; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; whole-plate Spanish mahogany camera, by Mason, Glasgow, leather bellows, single extension, wide angle movement, rising, falling and cross fronts, reversing, three double slides, changing box for twelve plates, fine Euryscope lens, Waterhouse stops, Newman shutter and folding stand, grand set, £7 17s. 6d.; half-plate camera by Parker, Holborn; "Companion" finest Spanish mahogany, wide angle movement, all latest improvements, leather bellows, etc., three double book slides, Optimus rapid rectilinear lens, Waterhouse stops, Thornton-Pickard shutter, four-fold ash tripod, the set, including stands, fits in solid leather case, set as new, £8 5s., worth double; half-plate camera by Houghton, Holborn, double extension, wide-angle movement, rising and falling front, leather bellows, etc., rapid rectilinear lens, iris stops, three double slides, three-fold stand and case, as new, £6 10s., warranted; half-plate Spanish mahogany camera, by Lonsdale, Leeds, wide angle movement, double extension, leather bellows, etc., rapid rectilinear lens, Waterhouse stops, double dark slide, and folding stand, £4 10s.; Lancaster's half-plate 1892 instantograph camera, all latest improvements, double extension, leather bellows, etc., double slide, quarter carrier, very fine rapid rectilinear lens, and folding stand, set complete, 75s.; Optimus ¼ plate portable A. R. camera, all latest improvements, three double book slides, Optimus rapid rectilinear lens, Waterhouse stops, shutter, sliding tripod, and waterproof stiff cameras, case quite new, £4 17s. 6d.; quarter-plate instantograph camera, lens, iris stops, double slide, and folding stand, 27s. 6d.; quarter-plate Le Merveilleux set, by Lancaster, complete, 15s.; quarter-plate extending camera, best order, good lens, two double book-form slides, and folding stand, 17s. 6d. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Magic Lanterns and Slides. — Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

Regulators and Gauges.—Great reduction, in price. Either can now be had of Walter Tyler for 14s. each. The largest stock of gas cylinders in England. Best seamless steel, tested and valved, and all sizes at very low prices.

Slides from Negatives and Pictures.—Walter Tyler manufactures and colours slides on the premises, thus ensuring speedy delivery, and prices are most moderate.—Walter Tyler, 48, Waterloo Road, London.

Biunial Lanterns.—If you are in want of a really good biunial lantern, perfect in every respect, call and see Walter Tyler's entire brass fronted, mahogany-bodied, lined with Russian iron, and fitted with new best quality lenses, and sold at a most moderate price. The top lantern will take a 4-wick lamp. These are great bargains.—Walter Tyler, 48, Waterloo Road, London.

Hire Department is now perfect. Largest and best collection of slides in the world; over 200,000 always in stock. Temperance, travels, Scripture, educational, comic, tales, etc. Cheaper than any other house, no extra charge for coloured slides or effects. Special terms for large quantities.—Walter Tyler, 48, Waterloo Road, London.

Lanterns and Slides.—If you wish to hire, purchase, or exchange, you cannot possibly do better than go to Walter Tyler, who makes this business a speciality, and you will thus save dealer's and all intermediate profits.—Walter Tyler, 48, Waterloo Road, London.

Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps. Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; scientifically constructed, not commercial; several whole and half plate for sale, cheap.

The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Science Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

Magic Lanterns, Magic Lanterns.—Largest assortment in the world, cheapest and best, nicely japanned lantern, 4 in. double condensers, portrait combination front lenses, rack and pinion, four-wick lamp, in case, £1 7s. 6d. Others more elaborate, but as cheap.

The Docwra Triple Prize Medal, highest award, supplied to Dr. H. Grattan Guinness, Capt. C. Selwyn, Madame Adelina Patti, and the Royal Polytechnic, etc.

The Malden Triple; supplied to B. J. Malden, Esq.; unparalleled results; Capt. Chas. Reade, R.N.

Fine Triple Lantern; telescopic draw tubes, four set of high-class lenses, £38 10s., worth nearly double. Given away.

Special Triple; mahogany, entire solid brass fronts, £12 12s.; a really good lantern, unequalled.

Elegant Mahogany Biunial; brass fronts, £7 10s.; blow-through safety jets, 6s. 6d. and 8s. 6d.; mixed gas jet, 12s. 6d.; Malden double dissolving tap, 12s. 6d.; regulators, 12s. 6d.; gauges, 12s. 6d.; grand effects; particulars free, before purchasing. Send for Mr. Hughes's grandly illustrated catalogue, over 180 finely cut original wood engravings, price 6d., postage 3d.; separate list of 60,000 slides, price 6d., postage 3d.; pamphlets free; second-hand lists free of bargains.—W. C. HUGHES, Brewster House, Mortimer Road, Kingsland, London, N. Fifty slides, all nicely coloured, on loan for 3s., in special despatch boxes.

The AMATEUR PHOTOGRAPHER

Telephone No. 1645

Telegraphic Address: VINEY, LONDON

Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 433. Vol. XVII.] FRIDAY, JANUARY 20, 1893. [Price Twopence.

OUR ◆ VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 *till* 5 *o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc, from* 10 *till* 1 *o'clock.*

Our Views.—Painters as Judges—Louth Exhibition—Ghost Photography—H.M.S. *Howe*—Berlin Photographic Company—A Public Photographer Wanted—Mr. Ralph Robinson's Album—The Optimus Competition—Burne Jones' Work, "Modern Painters"—H. P. Robinson on "Honours and Awards"—A False Alarm—The "P. R. R."—The Death of Mr. Wm. Bedford

Leader.—Printing in Colours.

Letters.—Winter Photography (The Reformed)—A Reader's Complaint (C. H. D.)—Rational Development (Bankart)—An Anachromism (Birch)—Packing Plates and Moonlight Photographs (Anderson)—Dealers *v.* Prize Competitions (Frank)—Talbot Photo Album Club (F. H. Davis).

Articles.—How to Print in Carbon (Hodges)—Photographic Lens Testing at Kew (Darwin)—The A B C of the Lantern.

Illustrated Supplement.

Amidol.

Societies' Notes.

Societies' Meetings.—Accrington—Aston—Belfast Y. M. C. A.—Birkenhead—Birmingham—Bristol—Darlington—Durham—Fairfield—Hackney—Kensington and Bayswater—Leeds—Liverpool Camera—Newcastle—N. Middlesex—P. S. G. B.—Putney.

EDITORIAL DEPARTMENT—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of **Three Words for One Penny**) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Lantern-Slide Competition, No. 44.—Latest day, February 11th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. **Address:** Editor, **Amateur Photographer**, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, February 24th, 1893.)

Commenting on our remarks of last week concerning painter-artists as judges of photography, a well-known photographer of unquestioned artistic ability remarks, "A painter may not necessarily be an artist." His success (measuring success as the world usually measures it, namely, by the revenue and notoriety he derives from his art) is not to be taken as a gauge of merit. His work may be decorative, it may be clever of a sort and popular in a way, and yet far from attaining to a high artistic grade, even as we have notorious and very popular photographers whose work no one would judge as guilty of artistic aims. Hence it is not sufficient that a committee of jurors should include the names of one or two gentlemen who wield the brush, unless their general artistic sympathies are broad and unprejudiced.

◆

The organisers of Louth Photographic Exhibition are finding strong support in influential quarters in London, where it is spoken of as a "well-mannered show." Pictures lent for this exhibition must reach Mr. S. Francis Clarke, L.D.S., of 8, Upgate, Louth, not later than January 23rd. By way of dedication, or rather a declaration of belief, the prospectus is headed with a quotation from a recent leading article in a contemporary over the initials "G. D.," which runs as follows:—"Exhibitions are not instituted as a means of scattering just so many distinctions, but as popularisers of photography, and as incentives to the highest class of artistic work."

◆

The subject of ghost photography, to which we made passing allusion last week, is still powerfully exercising the minds of many, probably in consequence of the article contributed recently to the *Fortnightly Review* by the Rev. H. R. Haweis. *The Morning* is pleased to describe, "Can a ghost be photographed?" as "the burning question of the day." There is, of course, nothing to be said against Mr. Haweis when he pleads "for sustained and careful inquiry without dogmatism or bigotry, until we have secured the facts upon which we can alone be entitled to reason;" but when he further asks whether such facts are not already secured there will be unrestrained dissent. Something more than startling little stories of blurred images of dead figures on half-developed plates, etc., is required for the conviction of the typically sceptical Englishman. We probably all know what it is to get "a ghost of an image" on our plates, but somehow a wholesome dose of mercury bichloride poisons our "ghost" and transforms him into something more substantial and intelligible.

◆

The good ship *Howe*, so disastrously stranded on the Spanish coast, is being diligently attacked by an eminent firm of salvage engineers of London, and H.M.S. *Narcissus,* leaving Devonport for Ferrol, is taking adequate photographic appliances to ensure, under favourable circumstances, photographs of the great ironclad being taken, thus illustrating her position and the progress of such salvage work as may be attempted.

◆

The Berlin Photographic Company are about to publish a fine photogravure reproduction of Raphael's "Madonna di San Sisto" of the Dresden Gallery. Next to possessing original works of the great masters is to have such really magnificent copies in untouched photogravure, and the benefit which the present generation must derive from the frequent contact of these works can hardly be calculated. A Birmingham contemporary, speaking of this particular publication, says:—"In a word, this is not an interpretation of Raphael's work: it *is* his work, somewhat reduced in size, and deprived of colour. If we were to write a volume about it as a reproduction, we could say no more than that; and it is beyond our province to write of Raphael's picture."

◆

Speaking of the desirability of reproducing each of the priceless MSS., and similar treasures at the British Museum and other national repositories, which by a catastrophe by fire or otherwise might be so easily destroyed, Dr. Richard Garnett, who, as Keeper of Printed Books at the British Museum, has for many years advocated the reproduction by photography of those literary gems committed to his care, says in a recent interview, "All that is wanted is a public photographer. In so far as photography for public objects is concerned, the photographer as a tradesman must be suppressed. The State must enlist him, the State must pay him a fixed salary, requiring the whole of his time, and the State must provide the assistance which would be requisite, and the necessary apparatus and chemicals. The actual and ultimate cost to the nation would be very small; it would, in point of fact, be to a great extent defrayed by the public demand for photographs of objects in the British Museum itself, which is already very considerable, and would be immensely increased by the great reduction of cost consequent upon the photographer becoming a public officer."

◆

The unique series of portraits of Royal Academicians and Associates for which, in addition to other excellent work, Mr. Ralph W. Robinson is so justly famous, are now being published in bound book form. Not reproductions by mechanical methods, but direct original platinotype prints from Mr. Ralph Robinson's own hands, sixty in number, are mounted, titled, and contained between massive covers, and in this form constitute a very important and superbly appointed work. We shall endeavour to find space for a more extended review of the work next week.

◆

We are now able to announce the result of the "Optimus 100 Guinea Competition," which is as follows, according to the judges' report:—

Class I.—	
Sub-class A. ..	The Haunted Cottage.
Sub-class B. ..	White Star.
Class II.—	
Sub-class A. ..	Per-Son-Ray.
Sub-class B. ..	Detective.
Class III.—	
Sub-class A. ..	Mezzo.
Sub class B ..	Ivan.
Class IV.	Lannul.

On opening the envelopes bearing the above *noms de plume;* we find the following:—

Class I.—	
Sub-class A. ..	C. Field, West Bromwich.
Sub-class B. ..	W. D. Welford, Birmingham.
Class II.—	
Sub-class A. ..	Mrs. M. E. Marriott, Liverpool.
Sub-class B. ..	Charles M. Berry, Belfast.
Class III.—	
Sub-class A. ..	John H. Gear, London.
Sub-class B. ..	John Wickens, Bangor.
Class IV.	Jas. W. Morgan, Tunbridge Wells.

◆

The prints sent in to our "Holidays with the Camera" Competition are now in the judges' hands, and we hope to be able to give their awards next week.

◆

A superb work illustrating and describing the life and work of the painter E. Burne-Jones, by Mr. Malcomb Bell, comes just now as a fitting accompaniment to the exhibition of the same artist's works at the New Gallery which we noticed last week. In this book photogravure plays a conspicuous and important part; indeed, it is difficult to conceive how such works would be possible but for the ever-ready handmaid to Art, much-despised photography.

◆

In looking through "Modern Painters," in search of a certain quotation, we hit across the following, which wasn't what we wanted, but noted it down for the benefit of our particular *f*/64 friend. Says the author of the above-named immortal work, "In nature you always see something, but you never see *all.*" The average lens, we rather fancy, sees *all,* and we were going to say, more besides.

◆

A correspondent to *Photographic News,* commenting on Mr. H. P. Robinson's article on "Honours and Rewards," champions mediocrity as a necessity and a staple condition of art. There is ingenuity in the argument, and he asks, "What, I ask, would become of photography if it were not for mediocrity? Why, there would not be a score of photographers left to carry on the art!" To which we feel almost inclined to reply—so much the better for photography and for the few who remain.

◆

The Metropolitan police force has yet to be educated up to understand the outward signs of an indoor flashlight demonstration. At a recent meeting of an important London photographic society, several flashlight exposures were made, with the result of a room uncomfortably filled with dense volumes of smoke, and, to release these, the window was thrown open. Subsequent flashes were produced, and ere long the prolonged blast of a policeman's whistle was heard. Within a few minutes two fire-engines were standing outside the building, and two or three helmeted men were mounting the staircase. The outpouring smoke and the bright light in the upper room had misled the guardians of the public safety. So, at least, the story goes.

◆

The *Photographic Review of Reviews* appears this month in a new-coloured dress, which is not, in our opinion, an improvement—we like the old dirty, Quaker-like colour. One of the features in this month is a cartoon, entitled, "The Press Club Dinner," and represents the shining lights of photographic journalism. Mr. J. Traill Taylor, the veteran, takes the chair with a churchwarden, and the portrait of him, Mr. Hay Taylor, Mr. Sturmey, and Mr. Welford are not bad—in fact, good. That of Mr. Snowden Ward is simply execrable. It may be easy to recognise people from their backs, but we defy even our own particular friend to recognise ours, and did you Mr. W. D. W. ever see our neighbour on the right with a pipe? We haven't, and we have known him possibly better and longer than you. Still, we advise our readers of the existence of the *Photographic Cartoonist*, and there are plenty of competitions in the *Photographic Review of Reviews*—all, we note, with an entrance fee of 1s.

* * *

We regret, as must everyone who has ever had the pleasure of meeting Mr. William Bedford, at the sad intelligence conveyed in the following letter. Mr. Bedford was of a very quiet, retiring character, but he had made his name, not only as an excellent worker, but as a keen observer, and a living example of "one of nature's gentlemen."

Dear Sir,—I am deeply grieved to inform you of the death from typhoid fever of Mr. William Bedford, which occurred this morning at his residence, 326, Camden Road, after a very short illness.

By the death of Mr. Wm. Bedford our profession is deprived of one of its most brilliant ornaments, one who from his youth was always an ardent and extremely conscientious worker, and who, with ripened experience, became one of its most successful exponents.

The loss of Mr. Wm. Bedford will be keenly felt at societies and clubs of which he was a member, where he was always popular, and at which his opinions and advice on all matters connected with photography were deservedly held in the highest esteem.

For those who, with myself, are daily engaged at Camden Road, I cannot describe our grief at the early death of Mr. Wm. Bedford, whom we have known so long, and who, since his accession to his father's business, has ever been a most kind, courteous, and indulgent employer.—I am, etc.,

Robt. Hayward.

January 13th, 1893.

PRINTING IN COLOURS.

In the *Photographische Mittheilungen* for January 1st is issued an exquisite illustration of some fruit printed in colours from three process blocks. Undoubtedly this is the finest thing which has yet been turned out by this process, and we do not for one moment wish to decry it. But the editor, Dr. H. W. Vogel, in his comment on the same remarks:—

"We fulfil to-day our previous promise in giving to our readers a print in natural colours, and not in collotype, of which we have already spoken, and which have been prepared in considerable numbers during the past summer according to the Vogel-Ulrich process, but in letterpress print worked out conjointly by W. Kurtz and E. Vogel, jun., in New York. . . This picture from natural (not painted) still life will prove to the reader the possibility of carrying out the process of E. Vogel and Kurtz. The surprising thing about the picture is not merely the colours but also the reality; the natural bloom of the peach, of the grapes, the moisture of the lemon, even the peculiar excrescences of the pine-apple are accurately reproduced. . . We can congratulate ourselves on having a German discovery which has been perfected on American soil under the hand of the master of autotypy, W. Kurtz."

Whilst we admit the perfection of printing, the correctness of the colouring, and the "stoffliche," or the correct simulation, of the bloom, etc, we object to the "German discovery." We would point out to Dr. Vogel that Dr. E. Vogel is not the only man who has been working in this direction.

In September, 1890, Messrs. Waterlow printed from an oil painting by process blocks in three colours, and this was issued with *Land and Water*, September 27th, 1890. Another supplement by the same process was issued by *Land and Water*, February 13th, 1892, this being also from an oil painting. Another one was issued with the 1892 Christmas number of the *Gentlewoman*, printed on satin, and another on May 7th, 1892, with the same paper. But we have a print in colours from three process blocks, which was an experimental one, it is true, of a group of still-life objects, not an oil painting, but which was rejected for the final collotype prints which were issued with the *Photographic Quarterly* for July, 1890.

How in the face of these statements Dr. Vogel can claim the process as a German discovery we fail to see, any more than one of our present plate manufacturers could claim to have discovered the gelatino-bromide process, because they have brought it to such perfection.

Letters to the Editor.

WINTER PHOTOGRAPHY.

Sir,—"The Baron," January 6th, has given rather an amusing account of his difficulties. I fancy he is not, however, wholly in earnest. When a man has a hobby he ought to be "properly" mad over it, and he is little likely to succeed if he be not in that condition. I will take "The Baron's" troubles seriatim. He gives his hours of business. In the city he could surely find time to expose enough plates to give plenty of home work, with some rare experience in development. There are all sorts of things suitable—buildings, the crowds, and what not? Now, on Saturday, he proposes taking an "artistic study of a lamplighter at 3 p m., with a plate registering about 999 Warnerke." What would he say to a picture actually taken on Sunday afternoon, January 1st, 1893, at 3.55 p.m., when the street lamps were alight? It was in old St. Pancras churchyard, facing east, the moon about 40 deg. above the horizon; A friend of mine the object; the details, snow, a cactus and railings in the foreground; small poplar trees, with a house and the Midland Railway viaduct and fog in the distance; the camera, a cigar-box; the lens—well, I won't say who made it, or I shall not be believed. It worked at f/11; exposure, 8 seconds. The plate, Ilford special rapid; developer, amidol, stock solution, 1 to 8, one hour, with occasional rocking; then three-quarters of an hour stock solution. All detail is out, and the density pretty good. Then, again, I took a snap-shot (Ilford special rapid again), same aperture, on a foggy morning last week, in a London street, of people drawing water, just to test a new shutter, which works in about 1-25th sec. This took nearly three hours to develop with amidol, and picture is very thin, but still a great deal of detail is there. Of course, it is very nice to have plenty of time and money. But a great deal may be done without much of either, if one trusts to perseverance and home-made apparatus. Most of my photographic appliances are of the home-made "common or garden species." To quote "The Baron," my Sunday-going hand-camera is properly and demurely clothed for the nonce in a sober-looking black leather case, lettered "Hymns, Ancient and Modern." To complete the "book" form, one of the sides opens, and displays a title page and the first few hymns, but the rest of this work is a treatise on "Undeveloped Beauties of a London Sunday." These, of course, appear in the dark-room later on. So complete is the illusion produced by my hymn-book that the neighbours are struck to find that I have developed such a religious tone. They little know the dark things on which I am ruminating as I jog along with that soft and gingery tread, peculiar to the tribe which has before now caused me to be "claimed" by an itinerant preacher to assist. Oh that book! But what snap shots I have of my good friend's audiences! My shady doings were nearly discovered, however, when I was suddenly asked to give out hymn No. 99. My volume only went so far as No. 19. I suggested the likeness and peculiar appropriateness of No. 18. All went well, so did the picture. The "book" is now stereoscopic, opens at both ends, and includes No. 999.—Yours, etc.,

The Reformed.

London, N., January 11th, 1893.

* * * *

A READER'S COMPLAINT.

Sir,—The Amateur Photographer, compared with all the rest
Of photographic journals, is undoubtedly the best;
Attractive in appearance, typographically neat,
And as full of information as an egg is full of meat.
We await with some impatience, each recurring Thursday night,
To dwell upon its pages with unqualified delight;
But—there's a "but" in every case, as everybody knows,
Semper amari aliquid, a thorn to every rose—
In spite of its attractiveness, reduplicated when
I discovered in its pages an effusion from *my* pen,
Your very latest number I have found I can't peruse
Without its bringing on a visitation of "the blues"!

They say that green's forsaken, and yellow is forsworn,
While blue's the very sweetest tint that ever can be worn;

And the ancient superstition I'm not going to efface,
But in colour, as in most things, much depends upon the place.
On a dainty maiden's blushes you may positively dote,
But you'd sing another tune did they come off upon your coat!
A coat so stained *might* come between a maiden and her lover,
And the AMATEUR PHOTOGRAPHER *may* suffer for its cover.
So pray, Sir, ask your publishers in future to eschew
That truly awful printer's ink that dyes our fingers blue!
And believe me, Mr. Editor, respectfully to be
Your very constant reader and admirer, C. H. D.

* * * *

RATIONAL DEVELOPMENT.

SIR,—In reply to Mr. Dibdin's remarks, as I have not had the "Year Book of Photography," I have missed seeing the article by Mr. Edwards in 1888, and therefore cannot compare his method with my own, and on the score of the antiquity of the process, I agree with him—neither Mr. Simkins nor I have hinted that it is in any way a new idea.

It is an adoption of the formula of the Paget Prize Plate Company, issued with all their plates, and it was there I first met with it, but it is given by the makers to be used *only* in cases of known over-exposure. Finding the effects to be good in preserving the cleanness of the image under the forcing effect of ammonia for getting density, I adopted it for general use with every plate, and have recommended it to my friends, in which way it reached Mr. Simkins, and it is simply the fact of his well-known success in landscape photography which has been the means just now of bringing the matter prominently before the Birmingham Society, and so getting into the photographic papers, but it is an excellent method of working, and will save many a plate accidentally over-exposed, which, without citric at hand for instant use, would be rapidly fogged and lost as a decent negative.—Yours faithfully, GEORGE BANKART.

* * * *

AN ANACHRONISM.

SIR,—It has several times lately been stated that a photograph of an historical subject (taken of course from models) is an anachronism, and Mr. Huggins in your last issue calls it a fearful one.

Perhaps it is, but if so, is not an oil painting of any historical subject prior to the days of Van Eyck equally an anachronism?

No one looking at, say, one of the thousand and one pictures of Biblical subjects, done in oils, line engraving, or other comparatively modern process denounces it as an anachronism, though they are aware that the picture was drawn from 1,300 to 6,000 years after the event took place, and probably from models; but employ camera, lens, and dry plate instead of brush, oil paint, and canvas, and there is at once an outcry of "fearful anachronism."

I do not suppose that such photographs are as a rule artistic successes, but that is beside the question.

Why this thusness?—Yours, etc., WALTER DE H. BIRCH.

* * * *

PACKING PLATES, AND MOONLIGHT PHOTOGRAPHS.

SIR,—Your correspondent "J. W. S." has made me glad to think that there are some other amateurs who agree with Mr. Williams and me about the packing of plates. He disagreed, however, with my suggestions about the sensitometer numbers, and I daresay he is right; personally, I am not acquainted with Hurter and Driffield's Actinograph, so I cannot vouchsafe any opinion on it. I also heartily agree with what he says about papers. Makers really ought to give you some idea as to what exposure to give from various lights and distances. I should like, though I fear I am trespassing terribly on your valuable space, to ask a few questions on moonlight photographs and other subjects. I have not yet attempted a moonlight picture, but I want to try. Suppose the moon is full, as I see it is, at about Easter-time, when I shall be able to do it—the 1st of April, to be exact—what stops should I use between *f*/10 and *f*/30; what exposure should I give with an Ilford ordinary plate? What would be the best way to develop them, using Ilford hydroquinone?

I have a quarter-plate negative of an old house, which fills up the whole of the plate, and I am very desirous of making it into a lantern-slide of $3\frac{1}{4}$ in. square. Can anyone tell me how to do it without cutting off the wings, which are the most interesting part of the whole place?

In your issue of January 14th, there is a very able article on "Photographic Failures, and How to Ensure Them." One way of getting a thoroughly good "waster" is by putting in the dark slide and drawing the shutter without capping the lens. This is especially successful when you want to take an instantaneous photograph of some babbling brook or something else of that sort.—Yours truly, KENNETH ANDERSON.

DEALERS *v.* PRIZE COMPETITION.

SIR,—I should like to hear the opinions of the readers of your paper on the following question: "Should photographic dealers be allowed to enter prize competitions?" I argue that they should not, for the following reason. They possess advantages which the amateur has not, such as the use of very expensive cameras, lenses, etc., which, after use once or twice, they can put back into stock. What chance has any one in cases like this? I will give a case in point, as I only know of one dealer who enters these competitions—there may be more. This dealer has several medals—gold, silver, and bronze—which I have seen, and has only lately won another silver one. I ask again, is this fair? No; and the sooner they are stopped the better. I am not writing this for any personal motive, but in common fairness to other competitors. I myself have never entered any competitions, but I shall do so very soon if dealers are kept from entering, but not otherwise. I know that there is no regulation against their entering.

Hoping to have the opinions of your readers, I am, etc, FRANK.

* * * *

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How to Print in Carbon.

By JOHN A. HODGES.

CHAPTER III.

BEING in possession of some sensitised tissue—either prepared according to the directions given in our last chapter, or obtained direct from one of the commercial sources—we may now set about printing.

Presuming that the negatives have been prepared for printing by being provided with a "safe edge," they are placed in the frames, and a piece of sensitised tissue of the full size of the negative to be printed from, superimposed, care having been taken to dust the surface of the tissue with a soft camel-hair brush.

Now carbon tissue undergoes no visual change by exposure to light, and, therefore, a mere inspection of the tissue during printing affords no clue in determining the proper amount of exposure. Were this entirely a matter of judgment the process would doubtless present serious difficulty to many, but the progress of printing is gauged by the darkening of ordinary sensitised paper to a certain depth in an instrument called the actinometer. Of these instruments there are several commercial patterns obtainable, of which one of the best is that sold by the Autotype Company. One of these should be purchased, or a home-made makeshift arrangement may be easily constructed. A small cardboard pill box, about $1\frac{1}{2}$ in. in diameter, should be procured, and in the lid two parallel slits, $\frac{1}{2}$ in. long and $\frac{1}{2}$ in. apart, should be cut. Expose a piece of ordinary sensitised paper to the light until it darkens to a light chocolate colour. Now paint the lid of the box with a colour as nearly matching the tint of the exposed paper as possible. When the paint is dry, cut a strip of sensitised paper just wide enough to pass through the slits, roll it up in a little roll, place it in the box, pass the free end through the slits, and shut the lid. The actinometer will then be ready for use.

Carbon tissue is, approximately speaking, at least twice as quick as silver paper, and this being taken as a guide, the progress of printing is determined by the darkening of the silver paper in the actinometer to a standard tint. The actinometer and the printing frames are simultaneously exposed to light, and if the instrument employed be the one supplied by the Autotype Company, the tissue must be allowed to remain printing until two tints have been registered, the number of tints varying according to the density of the negative. If the home-made instrument be employed it will be necessary to make several trial exposures

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and develop the prints, so that the number of tints necessary may be determined upon. In printing it will be found convenient to group the negatives in relation to their density, and not to expose at the same time very dense and very thin ones, which would, of course, lead to uncertainty in the results

I believe I have before remarked, and if not, I lay emphasis upon the fact here, that the carbon process is eminently a winter one, in that it is far more sensitive to the weak light of that period of the year than is any other printing process. In fact, the only process with which it can be compared in point of rapidity is platinotype, and over which process, if ordinary precautions are taken, it possesses the great advantage of being far less liable to deterioration on account of the influence of damp. Correct exposure will, as in other processes, produce the finest technical results, though for securing a particular effect under or over exposure may, of course, be resorted to. When the number of tints necessary for any given negative have been ascertained, a note should be made in a book kept for the purpose, so that when the negative is required to be printed from subsequently, the duration of exposure may be known. It will generally be found better to print in diffused light, unless the negatives are exceptionally hard and dense, when sun printing may be resorted to. If the tissue has been sensitized at home, great care must be taken to see that it is perfectly dry before it is placed in the printing frame, for if any moisture lurk in the gelatinous film it would probably become softened by the heat of the sun, and would adhere to the negative and spoil it beyond remedy. If by miscalculation a batch of prints should be found to have been under-exposed, they need not be regarded as wasted, for by placing them (of course in the dark) in a slightly damp atmosphere the printing action of the light will proceed. This curious property has been termed " continuating action,"and is a very valuable feature of the process to the amateur whose time for printing is limited. He may secure prints during the winter months by placing the frames in the window overnight, so that printing may start with the early morning light ; and if he removes them from the frames before leaving town, and puts them in a box in which a damp sponge has been placed, he will probably find by the time he is ready to develop in the evening that printing has proceeded sufficiently far. I do not say that it is not better to print in the orthodox way when possible, but that the method suggested is thoroughly practical there can be no doubt, more than one amateur of my acquaintance having to my own knowledge adopted it with success.

Having printed the tissue, we will now proceed to make the necessary preparations for development. This part of the process should not be carried out in strong daylight, but should be performed by preference in gaslight or other artificial light. If daylight is employed, the window should be screened with some weak non-actinic fabric.

The tin or zinc dish should be filled with warm water, placed on the iron supports, and the heating apparatus, whether lamp or gas, lighted and placed underneath. The thermometer should be placed in the water, and the heating continued until an even temperature of about 95 deg. is obtained. The height of the flame should then be so adjusted that an even temperature is maintained. As we wish to make our first experiment in pigment printing as simple as possible, we will assume that reversal of the image is a matter of secondary importance, and therefore we can produce our first prints by what is known as the single transfer process, though, as before stated, non-reversed prints may be obtained if a reversed negative be employed for printing from.

To proceed, one of the porcelain dishes should be filled with cold water, in which the printed tissue should be immersed until it becomes quite pliable and limp. Some pieces of transfer paper should then be cut up to a size slightly larger than the printed tissue, and immersed in a dish of hot water; a piece of the transfer paper is then removed from the hot water, laid, face up, on a sheet of clean glass; a piece of the limp exposed tissue is then taken from the cold water, laid face down on the single transfer paper, and a squeegee carefully but firmly applied until perfect contact between the two surfaces and an entire absence of air-bells results. The print is then ready for development, which is effected by immersing the support with the adherent tissue in the developing-tank, the water in which should be at a temperature of about 95 deg. The first thing to be done is to get rid of the paper support upon which the sensitive tissue was originally coated. After the tissue and its support has been soaked for about a minute in the warm water, the paper backing will begin to peel at the edges ; when this occurs, a corner may be seized between the thumb and finger, when it will be found that the paper will peel off in one piece, leaving the pigmented tissue firmly attached to its permanent transfer paper support. As soon as this occurs, the water in the tank will be observed to become tinged of the same colour as the particular pigment which may happen to be employed—in fact, development proper has commenced. It is convenient, though not essential, to have a sufficient depth of water in the tank to allow of the picture being kept in a vertical position, when the developing action of the water can be assisted by freely laving the print with the hand. The gelatine unacted upon by light will dissolve away, the portions acted upon by the light, having become insoluble, remaining and forming the picture.

(To be continued.)

Photographic Lens Testing at Kew.

BY MAJOR LEONARD DARWIN, R.E., M.P.

(Continued from page 17).

WITH regard to the method of enumeration of the stops which has been adopted in the wording of the Certificate, and which has been called the C.I. system, as this has been a subject over which there has been so much controversy, I shall say very little to-night. I must, however, remark that this system was not selected so much on account of its merits, but chiefly because we considered that the fact of its having been recommended by the International Congresses of Paris and Brussels undoubtedly make it the one most likely to be universally accepted throughout Europe. No one can deny that it would be a matter of public convenience if there were only one recognised method of numbering, and it is to be hoped that all will combine to bring about this photographic reform. I should like to take this opportunity of appealing to all intending purchasers of lenses to ask for stops numbered according to the C.I. system ; by so doing they will, in my opinion, be assisting in a useful movement, and they will, moreover, avoid getting accustomed to the use of other systems, all of which, we trust, will become obsolete in time. We hope that no jealousies may stand in the way of the general recognition of this one system, and that those who have to make changes in consequence will cheerfully put up with the great inconvenience it may cause them.

We have wandered a little from our point, and we must now return to see how the certificate, which has been placed in our hands, will help us to judge of the quality of our lens. Look first at the *General Remarks* at the end, and there we shall find a general expression of opinion on its merits ; whether it is excellent, good, fair, indifferent, or bad ; whether it is slow, of medium rapidity, rapid, or extra rapid ; and whether it covers a narrow angle, a medium angle, a wide angle, or an extra wide angle. On this latter point—the width of the angle covered—it is to be noted that the wording does *not* depend on the widest angle which the lens is capable of covering, but merely on the angle it does cover on the plate of the named size. Under the tenth heading in the Certificate we are first given the "Angle of Cone of Illumination," that is, the extreme angle covered by the lens without any regard to definition, intensity of illumination, or size of plate; a little lower down we are told what is the diagonal of the plate we have named, and what is the angle comprised in the field with our lens on that plate; that is to say what will be the extreme angle included from corner to corner of the photographs we propose to take with the lens; it is by this latter angle alone that the Observer at Kew decides how to class our lens as to width of angle in the *General Remarks*.

The *General Remarks* will probably suffice to satisfy the majority of those who send their lenses to Kew, but anyone who prefers to do so may form his own opinion on his lens, by considering the information given under the different headings in the Certificate. To do this it will, in the first place, be as well to lay down exactly what it is we want to know. Is the lens, generally speaking, a good one? With what rapidity will it work, or more accurately, what is the largest stop which gives good definition over the whole plate? What exposure must be given with the different stops? If the practical photographer is given the answer to these three questions, he will require, we think, little further information. We will discuss each question separately.

Is the lens, generally speaking, a good one? In order to answer this question, the results given under several headings in the certificate should be carefully considered. The centering in the mount (No. 6) should be good; the visible defects (No. 7) should be trifling; there should be no flare spot (No. 8); the definition at the centre of the plate (No. 14) should be excellent; as to the test for achromatism (No. 15), the difference of focus in white and blue light, which should be tolerated, will vary with the number of the largest stop likely to be generally used, and the lens must be judged accordingly. (The following may be taken as a rough rule; if the first column of the table on this page gives the number of the largest stop likely to be generally used, the figure in the next or second column opposite to it may be considered to represent the maximum difference of focus in the two lights which should be tolerated.) If the lens is intended for plain work, the distortion in the image of a straight line along the edge of the plate, as shown by the thirteenth test, should be exceedingly small; whereas if the lens is solely for landscape work, it is not necessary to be so strict in our requirements. The above are the chief points to be considered when discussing what may be called the general merits of the lens.

TABLE giving the difference of focus in inches of the centre and the margin of the plate (or, after focussing the plate at its centre, the amount it has to be moved to bring the margin into focus) with reference to the size of disc of diffusion and number of stop.

C.I. No. of Stop.	Diameter, in decimals of an inch, of the maximum disc of diffusion when the plate is in the position giving the best general focus.									Approximate ratio of effective aperture to focal length.
	0·002	0·004	0·006	0·008	0·010	0·012	0·014	0·016	0·018	
64	0·32	0·64	0·96	1·28	1·60	1·92	2·24	2·56	2·88	*f*-80
60	0·31	0·62	0·93	1·24	1·55	1·86	2·17	2·48	2·79	*f*-77
56	0·30	0·60	0·90	1·20	1·50	1·80	2·09	2·30	2·69	*f*-75
50	0·28	0·57	0·85	1·13	1·41	1·70	1·98	2·26	2·55	*f*-71
48	0·28	0·55	0·83	1·11	1·30	1·66	1·94	2·22	2·49	*f*-69
40	0·25	0·51	0·76	1·01	1·27	1·52	1·77	2·03	2·28	*f*-63
32	0·23	0·45	0·68	0·91	1·13	1·36	1·58	1·81	2·04	*f*-57
30	0·22	0·44	0·66	0·88	1·10	1·32	1·53	1·75	1·97	*f*-55
24	0·20	0·39	0·59	0·78	0·98	1·18	1·37	1·57	1·76	*f*-49
20	0·18	0·36	0·54	0·72	0·89	1·07	1·25	1·43	1·61	*f*-45
16	0·16	0·32	0·48	0·64	0·80	0·96	1·12	1·28	1·44	*f*-40
15	0·15	0·31	0·46	0·62	0·77	0·93	1·08	1·24	1·39	*f*-39
12	0·14	0·28	0·42	0·55	0·70	0·83	0·97	1·11	1·25	*f*-35
10	0·13	0·25	0·38	0·51	0·63	0·76	0·88	1·01	1·14	*f*-32
8	0·11	0·23	0·34	0·45	0·57	0·68	0·79	0·91	1·02	*f*-28
6	0·10	0·20	0·29	0·39	0·49	0·59	0·69	0·78	0·88	*f*-24
5	0·09	0·18	0·27	0·36	0·45	0·54	0·63	0·72	0·81	*f*-22
4	0·08	0·16	0·24	0·32	0·40	0·48	0·56	0·64	0·72	*f*-20
3	0·07	0·14	0·21	0·28	0·35	0·42	0·48	0·55	0·62	*f*-17
2	0·06	0·11	0·17	0·23	0·28	0·34	0·39	0·45	0·51	*f*-14
1	0·04	0·08	0·12	0·16	0·20	0·24	0·28	0·32	0·36	*f*-10
¾	0·03	0·07	0·10	0·14	0·17	0·21	0·24	0·28	0·31	*f*-8·7
⅔	0·03	0·07	0·10	0·14	0·16	0·20	0·23	0·26	0·29	*f*-8·2
½	0·03	0·06	0·08	0·11	0·11	0·17	0·20	0·23	0·25	*f*-7·1
⅖	0·03	0·05	0·08	0·10	0·13	0·15	0·18	0·20	0·23	*f*-6·3
⅓	0·02	0·05	0·07	0·09	0·12	0·14	0·16	0·18	0·21	*f*-5·8
2/7	0·02	0·04	0·06	0·09	0·11	0·13	0·15	0·17	0·19	*f*-5·3
¼	0·02	0·04	0·06	0·08	0·10	0·12	0·14	0·16	0·18	*f*-5·0

With what rapidity will the lens work? This question is directly answered under the fourteenth heading in the Certificate, for here we find the C.I. number of, or the intensity of illumination produced by, the largest stop which gives good definition over the whole plate. By means of this answer we decide if the lens is rapid or slow in its action. In almost all cases lenses will have larger stops supplied with them than the one here mentioned; but these larger stops should only be used when increased rapidity is so necessary that it justifies the sacrifice of definition near the edges of the plate in order to obtain it; their employment can hardly, therefore, be looked on as the usual or normal use of the lens. The want of definition near the margin of the plate will, in all probability, be chiefly due to the curvature of the field, and it would, therefore, be as well to examine the twelfth test in connection with this subject. The following table is especially intended to assist in the interpretation of this test, and it should be used in the following manner:—First, by looking in the Certificate under this heading, we must find what is the movement necessary to bring the plate into focus at its margin, which perhaps we may be allowed to call "the curvature at the margin;" then we must decide what we mean by "good definition;" for general purposes of artistic landscape photography, we shall not be far wrong if we state that the image of a point of light must not have a greater diameter than 0·008 of an inch at any part of the plate. Accepting this view, we next look in the table under the column headed 0·008—the fifth from the left—and in that column find the number that comes nearest to the "curvature at the margin;" look out the corresponding number in the first column, and this gives us the C.I. number of the largest stop which can give good definition over the whole plate; for any larger stop must produce a disc of diffusion of greater diameter than 0·008 inch. With a portrait lens a far more liberal view of "good definition" must be taken. It is to be noted, however, that this theoretical way of looking at the subject does not take into account other causes of bad definition near the margin, such as astigmatism, and it is possible that a smaller stop than the one thus found may be necessary to produce good definition. The records given in test No. 14 as to definition are the result of direct experiment, and not of such calculations as these.

What exposure must be given with the different stops? Of course all that can be given is the relative exposure with regard to some standard. The photographer, who has adopted the C.I. system of enumeration must learn from experience what is the length of exposure which must be given with *any lens* with stop No. 1, and, having acquired this knowledge once for all, he has merely to multiply this exposure by the number of the stop in use; the number of the stop being given under the ninth heading in the Certificate.

We have now shown how the answers to our three principal questions can be obtained from the Certificate, and it merely remains to point out that there are some other useful items which also may be gathered from this document. For instance, in the last line of test No. 10 the size of the largest stop the whole of the opening in which can be seen from the whole of the plate is recorded. This is a point to which, it appears to me, sufficient attention has not been paid: its importance lies in the following fact: the relative falling-off in density, as we approach the margin of the picture will be the same with this stop, and with all smaller stops; but with all larger stops than this one, the density will fall more rapidly towards the edges of the plate. Let me make my meaning clear by an example; let us suppose from the Certificate we find that No. 1, is the largest stop the whole of the opening in which can be seen from the whole of the plate; if we take a picture with stop No. 1, with a certain length of exposure, or if we take one with stop No. 2, with twice that exposure, or with stop No. 3, with three times that exposure, all the results will be exactly the same; but if we take a picture with stop No. ¾, with three-quarters of the exposure, the picture will not be so good, because there will be a greater falling-off of density near the edges of the plate; the reason being that the edges in this case do not, so to speak, see the whole opening in the stop. The photographic moral to be drawn is that we should never use a stop larger than the one named at the end of test No. 10, unless we are prepared to purchase the increased rapidity thus gained at the cost of obtaining a more or less inferior negative. To prove that this is no mere theoretical consideration, I may mention that in one of the very best landscape lenses, the intensity of illumination at the corner of the plate, 25 deg. from the axis is only 28 per cent. of what it is at the centre when the largest stop is used; whereas if the stop named in test No. 10, or any smaller stop, is used, it is as much as 66 per cent. of the central illumination; that is to say, that by using the largest stop we diminish the relative illumination of the margin some 38 per cent.

The density of a photograph must always, it appears to me, fall off towards the margin of a plate, and the Kew Certificate will help us to decide whether it will fall off too rapidly in a picture produced by our lens. The chief causes of variation in illumination give us a basis for accurate calculations, and, if we take these causes alone into consideration, it can be shown that the relative illumination at different parts of the plate should lie somewhere between the limits indicated in the following table; if the stop is either in front of or behind all the lenses, then the second column should give the results accurately.

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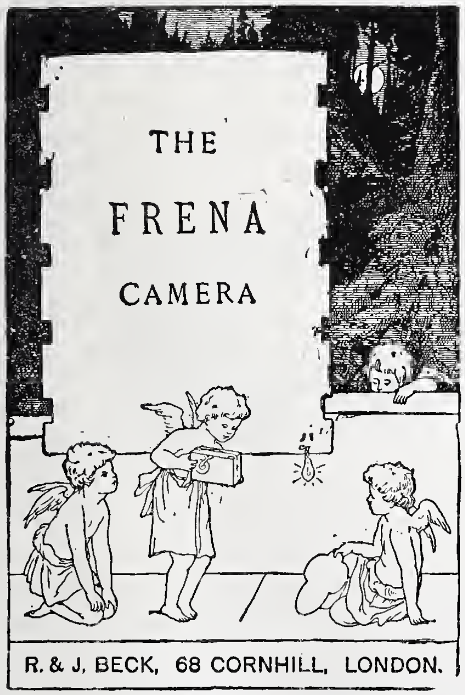
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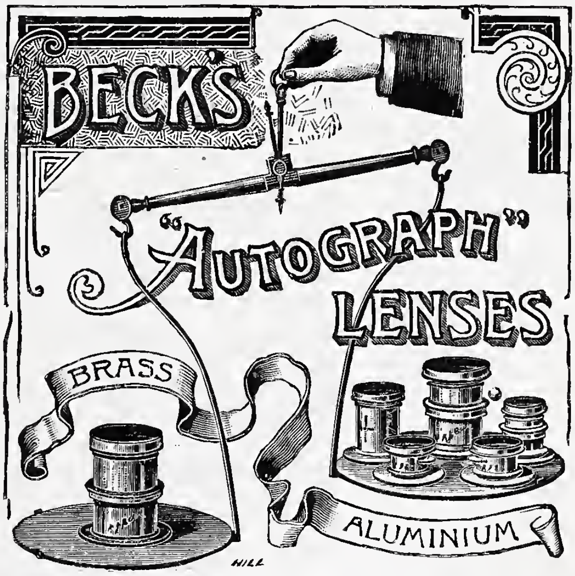

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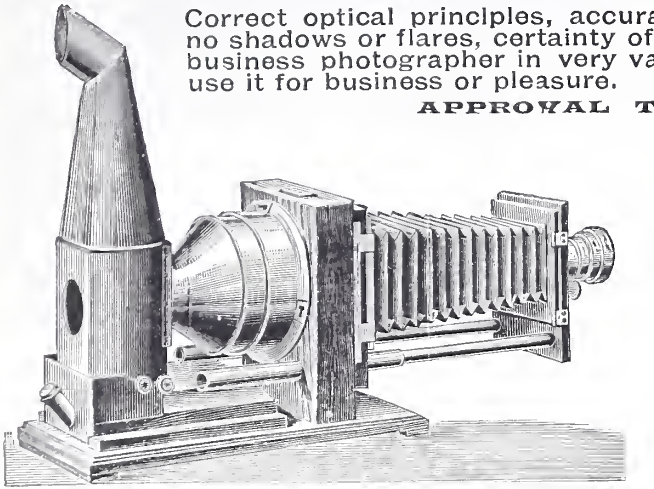

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Packing Box	0 1 6	0 2 6	0 3 0	0 4 0	0 4 0
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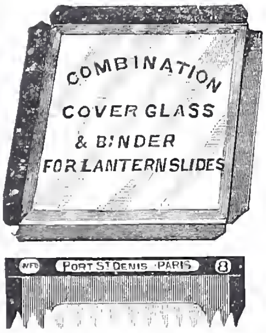

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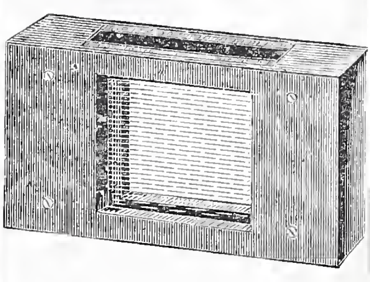

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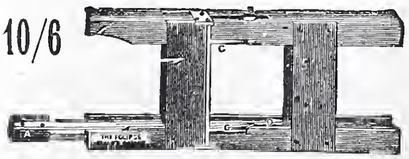

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Angular distance from axis of lens.	Relative intensity of illumination : limits of.
0 deg.	100—100
5 „	99—98
10 „	96—94
15 „	90—87
20 „	83—78
25 „	74—67
30 „	65—56
35 „	55—45
40 „	45—35
45 „	35—25

The figures recorded in test No. 17 should be compared with this table, and should not differ very materially from them; that is in the case of any stop not greater than that mentioned in the last line of the 10th heading, for with the larger stops it may fall off with any degree of rapidity.

The obvious conclusion to be drawn from a study of this table is how very objectionable is the use of wide-angle lenses if they can possibly be dispensed with. Perhaps I may also be allowed to point out, though these remarks hardly come within the scope of my paper, how inadequate is any system of enumeration of stops which does not take into account the angle which the lens has to cover. We evidently wish to obtain a correct mean exposure over the whole plate, for one part may be as important as another; whereas all proposed systems of enumeration, including the one adopted by us, merely consider the illumination at the centre of the plate. Now, by reference to the table it will be seen that the mean intensity of illumination for a plate covering 80 deg. will be about 68 per cent. of the central illumination (that is the mean between 100 and 35); whereas for a plate covering only 50 deg., the mean intensity is 84 per cent. of the central illumination; it follows, therefore, that one quarter more exposure should be given with an 80 deg. lens that with a 50 deg. lens, even though we may be using stops of the same number in the two cases.

Under heading No. 11, the principal focal length of the lens is given with great accuracy. It has often been held that this information is of primary importance, and I hardly dare express my own conviction that the practical photographer will be little, if at all, benefited by this knowledge. According to the recommendations of the International Photographic Congress, the focal length should be determined with an error of less than 1 per cent., but with what object is not clear. An approximate knowledge of the focal length is certainly necessary for determining the numbering of the stops, which we certainly hold to be of the utmost practical importance; but need we know it accurately for this purpose? How often can we estimate our exposure within 10 per cent.? Do we make any allowance in practice for the focus being taken on some near object, which may well increase the theoretical exposure more than 10 per cent? No allowance is made for the fact that the difference in intensity produced by absorption and reflection of the glass may vary more than 10 per cent. And it has just been shown that no allowance is made for the difference of angle covered by different lenses, which may cause a variation of the correct exposure of 25 per cent. or more. After stating these facts, can it be seriously argued that an error of one per cent. in the focal length is of the least importance as far as this consideration is concerned? I should, however, mention that the Kew results certainly do not err by more than one per cent.

A knowledge of the principal focal length may be required, however, for the use of the tables given in many photographic books, by means of which the distance of the object can be adjusted so that definite reductions or enlargements can be obtained. According to my own experience, these tables are only used for the purpose of first approximate adjustment, the final correction of scale being made by means of measurements on the ground-glass; for this approximation, the centre of a single lens or the slot in a doublet, may always be taken with sufficient accuracy as the point from which the distance of the object should be measured. For accurate enlargements or reductions, symmetrical lenses are nearly always used, and it may be remarked that the Kew Certificate does give the information required to mark accurately the point (the nodal point of *incidence*), from which the distance of the object should be measured. The difference between the principal focal length and the back focus, both of which are recorded under the 11th heading, gives us the distance from *inner* summit of the lenses to the nodal point of *emergence*; since the nodal point of *incidence* with symmetrical lenses lies at the same distance from the *outer* summit of the lenses (or the glass surface nearest the object), we thus get a ready means of marking this point on the mounting of our lens, if we care to do so.

In one other point the Kew Certificate may perhaps be useful. It may help to answer this question. At what part of the field of view should we take our focus if our sole object is to get the best general focus? To obtain an answer to this enquiry, look under the 12th heading, and see what is the curvature of the field at a distance from the centre equivalent to the edge of the plate; it will not be difficult to make an approximate estimate from the other figures recorded in this test, at how far from the centre of the plate the curvature is only half the amount thus found, and this will be the position at which the focus should always be taken if this is the only consideration in view.

I have now endeavoured to show how the Certificate obtained from Kew will be useful to the photographer in enabling him to judge whether his lens is or is not suitable for the purpose for which he requires it. It must be remembered that a lens is made as the result of a compromise between various conflicting conditions. Whatever quality we select as being the most important, whether it is definition, rapidity, or width of angle, we can only get extra perfection in that respect by means of a corresponding loss in the other less essential qualities. Such being the case the Certificate cannot directly answer the single question whether the lens is a good one or not, but it does express a general opinion on its merits when placed in a definite class. The photographer must decide what he wants, and, even if the lens is classed as excellent, he should reject it if it does possess the desired qualifications. As a simple example of what I mean it is obvious that a slow lens, however perfect, would be a failure for instantaneous work.

I have already said that time would not permit a lengthy discussion on the theoretical questions connected with the Kew examination, but I should like to be allowed to say a few words as to the various methods by which the tests are performed. (Here Major Darwin briefly described the testing camera employed at Kew.)

The testing camera was designed principally with the view of finding the principal focal length, though many of the other tests are made in it. The following short description may give some idea of the method employed:—The image of a distant object is thrown on the ground-glass and the focus carefully adjusted; the camera is revolved through a known angle, and the distance which the image appears to move on the ground-glass is measured accurately by means of a scale engraved on the glass; the angle is so arranged that the distance thus read off is half the focal length of the lens under examination. The merit of this system is that the whole operation—focussing the distant object, reading the position twice on the scale, and multiplying the difference of the readings by two—can be performed in a few seconds with very accurate results

The test for distortion, which in fact consists in measuring the curvature of the image of a straight line, is also performed in the testing camera. The ground-glass has a perfectly straight line engraved on it, and this straight line is placed in such a position that it represents the longest side of the plate, for it must not be forgotten that we are examining the lens with reference to a plate of named size. The image of a distant point is thrown on the ground-glass, and the camera is moved so that it has exactly the same effect as if the distant point moved in a straight line parallel to the line on the ground-glass; if, therefore, there is no distortion, the image will run along the straight line on the glass; if the lens is not free from distortion the image describes a curved line, the curvature of which can be readily measured with reference to the straight tine on the ground-glass. The evil effect of distortion produced by a lens is, in most cases, almost entirely due to deformation or curvature of lines, especially of straight lines, in the image, thus giving a false appearance to the picture; and this defect will be most apparent near the edges of the plate. The dip or sag in the image of a straight line along the edge of the plate would, therefore, seem to be the best measure to enable the practical photographer to form an idea of the evil effects produced by this defect in his lens. This therefore is the quantity recorded in the Kew Certificate.

The test for definition is one that gave us great trouble, and I fear that a perfect solution has not yet been found. A very simple device was finally adopted. A thin strip of steel, about one-tenth of an inch wide, is so arranged that it is capable of being turned about an axis in such a manner that it can be presented either edgewise or flat-faced towards the lens. This test object is first placed in the edgewise position in front of a moderately bright light, in which case the image is so thin as to be invisible; it is then slowly revolved so that it presents a gradually widening face towards the lens, until a black line crossing the image of the bright light first makes its appearance. We can thus measure the width of the thinnest black line, the image of which is just visible, and this gives us a measure of the defining power of the lens. The study of lenses of undoubted excellence enables the observers at Kew to determine what degree of defining power should be expected from lenses of different focal lengths.

(*To be continued.*)

* * *

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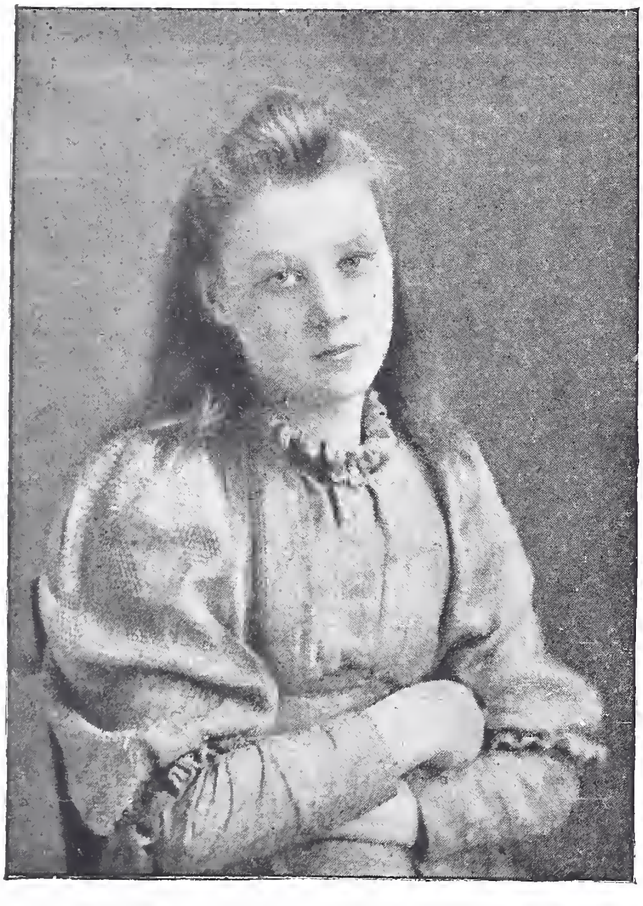
Monthly Competition, No. 43, "Portraiture and Figure Study."

WE regret that we were unable to announce the result of this competition last week.

The judges have withheld the Silver Medal and awarded two Bronze Medals and a Certificate. The pressure on our time consequent on the preparation of the Index (which will appear next week) compels us to content ourselves with a list of the competitors only.



No. 1.] "OUR BESSIE." [*W. J. Jenkins.*

BRONZE MEDAL.

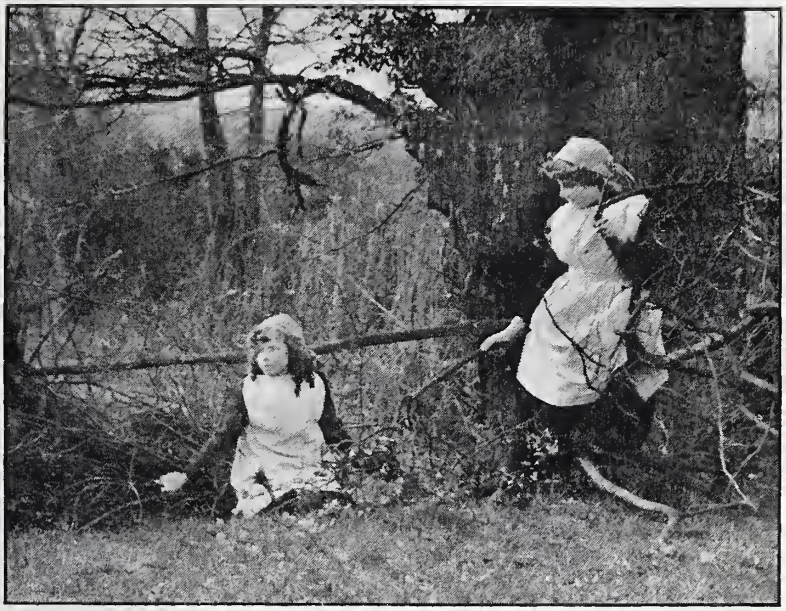
CLASS I.

Archer, C. F.	London, S.W.
Brandreth, B.	Cheshire.
Broughton, E.	Penally.
Carruthers, G. A.	Liscard.
Curle, C. H.	Melrose, N.B.
Edwards, J. H.	London, S.W.
Elphinstone, F.	London, S.W.
Eyre, H. S. W.	Crowborough.
Firth, G. F.	Wakefield.
Fisher, R.	Wandsworth Common.
Forret, J. A.	Edinburgh.
Heath, W.	Shrewsbury.
Judson, T. B.	Worcester.
Kent, F. W.	London, S.W.
Levington, R. R.	Glenageary, co. Dublin.
Leach, T.	Smallbridge, near Rochdale.
McLeod, G. E.	Ryde, I.O.W.
Marriott, M. E. (Mrs.)	Bootle, Liverpool.
Morgan, Rev. H. G.	Stoke Lacy, Herefordshire.
Mortimer, F. J.	Portsea.
Pearce-Couch, R.	Penzance.
Pollard, M. M. (Mrs.)	Cheltenham.
Post, W. B.	New York, U.S.A.
Richardson, J. T. (Mrs.)	Nottingham.
Ross, W.	Rutherglen, N.B.
Whiting, H. H.	London, S.W.
Williamson, J.	Hove.
Wilton, W. H.	London, N.E.
Young, B. J.	Sheffield.

CLASS II.

Adams, W.	Ware.
Andrews, W. S.	Edinburgh.
Banks, J. F.	Norwich.
Barber, R.	London, N.E.
Bartrop, H. R.	London, S.W.
Beesley, E. B.	Manchester.
Bishop, R. J.	Scarborough.
Booth, J. A.	Reading.
Bolton, L. P.	Waterford.
Bradfield, C. F.	London, N.E.
Brook, S.	York.
Bryant, G. E.	Manchester.
Canner, T. E.	Manchester.
Christie, T.	Manchester.
Clarke, A.	Basingstoke.
Clemence, H.	Chiswick.
Clegg, J.	Rochdale.
Craik, J. W.	Forfar, N.B.
D'Aeth, C. C. H.	Wincanton.
Davis, F. M.	London, S.E.
Davis, T.	Clevedon.
Densham, G. D.	Purley.
Dobson, G. S.	Ely.
East, W.	Kettering.
Edward, J.	Wimbledon.
Field, C	W. Bromwich.
Fisher, S. P., Mrs.	Newark.
Foster, P. S.	Halifax.
Gethen, C.	Hereford.
Goosey, J. G.	Catford.
Harding, G.	Stourbridge.
Harris, H.	Hayward's Heath.
Hawksworth, J.	Leek.
Hill, M. M.	Edinburgh.
Laidler, T. S.	Felling-on-Tyne.
Light, R., Capt.	Torquay.
Luddington, L. H.	Littleport.
Macgregor, A. M.	Clayton West.
McIsaac, T.	Douglas.
Maitland, Viscount	Lauder, N.B.
Martin, J. H.	London, S.E.
Mears, E.	Brandon.
Meginn, F.	Liverpool.
Moncrieff, W. A.	Brentford.
Moore, F. W.	Blackrock.
Moor, M	London, W.
Morey, J.	Portsmouth.
Newland, A. G. E.	Chin Hills.

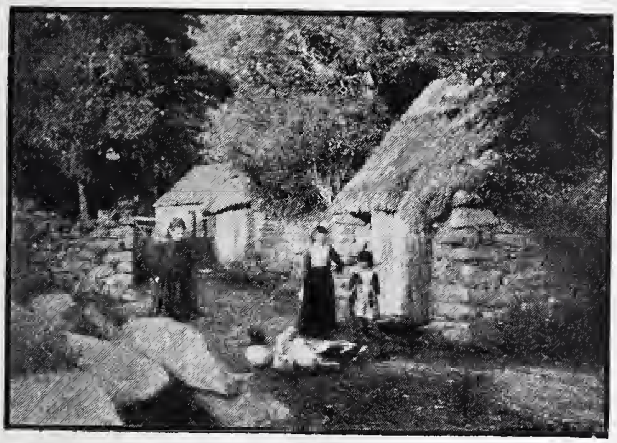
Niblett, J., Miss	Ledbury.
Patterson, T.	Preston.
Pearce, W. B.	Wednesbury.
Pritchard, F. P.	London, W.
Rice, W., jun.	London, S.E.
Roberts, E. T.	Manchester.
Rogers, W. S.	Chiswick.
Salmon, P. R	Cambridge.



No. 2.] "WOOD NYMPHS." [*Geo. Hankins.*

BRONZE MEDAL.

Scott, T. A. S.	Dorking.
Severs, J.	Kendal.
Shaw, R.	Coniston Lake.
Silver, A., jun.	Wolverhampton.
Smith, C. H	London, N.W.
Spalding, F. W.	Norwich.
Spedding, F.	Stockport.
Spiller, A. L.	London, N.W.



No. 3.] "CHACUN POUR LUI-MEME." [*Thomas Drapes, M.B.*

Sykes, H.	Manchester.
Tapp, M. E.	London, S.W.
Thomas, J.	Port Talbot.
Thomas, W.	London, S E.
Timmins, C. A.	Runcorn.
Urquhart, D. G.	Leicester.
Wheatcroft, A.	Bath.
White, M.	Wimbledon.

Wing, F.	Sheffield.
Winn, E.	Birmingham.
Witt, M. C.	Auchnasheen.
Woods, V. S.	London, S.W.
Woodward, F. G.	Bath.

* * *

At the Royal Institution Sir Robert Stawell Ball, the Lowndean Professor at Cambridge, in concluding his course of six lectures on "Astronomy," directed the attention of his large audience to the consideration of the stars, when he particularly counselled his young hearers to make a study of the constellations. Having demonstrated that the stars were suns, the lecturer showed some views of double and coloured stars. From the changes observed in the Great Bear, Sir Robert Ball expressed the opinion that it was clear that the constellations were undergoing alteration, although slowly. For instance, the heavens to-day were no doubt very much like what they were when Job surveyed them. But if the ichthyosaurus—which had the most penetrating eye a creature ever possessed—used to indulge in astronomical surveys, the heavens now would be entirely different to what they were in his time. Some of the stars were of overpowering distance from the earth. This would readily be conceived if they were to suppose that the operations of the Postmaster-General extended to the sun, moon, and stars. The speed of the electric telegraph was about equal to the speed of light, that was to say, 180,000 miles a second. Thus a message would go to the moon in a little more than one second. A "wire" to the sun would take something like eight minutes in transmission, so that if there was not much delay at the other end they would get a reply in about twenty minutes. If, however, they should want to get a message by telegraph to Alpha Centauri, which was the nearest of the stars, it would take not less than three years to reach its destination. If that were the case with a star that was known to us, what could they say of the other stars? There were stars so far away that if the news of Wellington's victory at Waterloo, in 1815, had been despatched by this inter-spacial system of telegraphy, it would not yet have reached its destination. They could go further. If the tidings of the conquest of England had been telegraphed by William the Conqueror to some of the stars in 1066, the news would not have reached them up to the present moment. Further off still were stars which would be still without the information, even if the glad tidings of the first Christmas in Bethlehem had been immediately sent over the electric wire to them. Some views of plates from telescopes manufactured for photographing the heavens were then shown. Sir Robert Ball directed special attention to the numberless minute points of light which dotted the plates. These, he said, denoted stars so small that not the keenest eye, aided by the most powerful telescope ever made, could discern them. The fact was that the photographic plate possessed a patience and delicacy not given to the human eye. To impress the audience still more with the different view of things taken by the photographic plate, the lecturer showed a picture of the *Great Eastern*, taken by camera just before she was broken up. When the plate was developed certain letters appeared on the hull that were not to be seen as the vessel was viewed by the naked eye, but had been disguised under a coat of tar. There was another star mamed Algol, to which he would like to draw attention. That bright star underwent wonderful changes; it "winked" in a way that no respectable star ought to do, and the old Arabian philosophers did not like this, and so they called the star Algol, or "the Demon Star." For a couple of days Algol would be one of the best-conducted stars in the heavens; but then the wink began. That wink had been going on for centuries, but it was only the other day that the explanation was found. The spectroscope had shown that Algol ran away, winked, and came back again, ran away, winked, and came back again, and so went on repeating his conduct, the real fact being that he revolved round another star. It was by the aid of the spectroscope also that the existence was known of stars in the far-away space, whose distance from our earth was appalling even to astronomers. Let them reflect for a moment that only a two-thousand-millionth part of the light of the sun came to this earth. Let them reflect further that each star was a sun, that the visible stars numbered millions, and that in outer space there were crowded innumerable more. Let them think of all that majestic system of suns pouring forth their rays, and they then began to appreciate the beauty of those words which were uttered in the beginning—"Let there be light."

The A B C of the Lantern.

Aero-Carbon Light. See Incandescent Gas.

Ahren's Polarising Prism. This is a prism constructed of three pieces of Iceland spar, but in consequence of the supply of this material failing, other substances and methods have been used. (See Polarising Apparatus.)

Ahren's Reflecting Polariser. See Polarising Apparatus.

Air Films, Colours of. This is an easy and a decidedly effective experiment. Two pieces of plate glass, preferably with rounded edges, should be obtained and thoroughly cleaned with dilute acid and plenty of water, followed by friction with clean chamois leather. On placing these two plates together and working them backwards and forwards, they will soon be found to stick or bite, and if clamped by American wooden clips at opposite corners they may be supported in a clip and thrown on the screen. The method of showing the colours of air films will be explained further on with diagram.

Air, Vibrations in. The best method of showing these is by the use of one of the slides produced by the eidophone, as described on p. 12.

Alum Cells. In working with the electric light, and even with the limelight, for delicate specimens, especially with the projection microscope, the great heat evolved is very detrimental; it is then customary to place in the ordinary stage of the lantern a large trough of alum solution, which absorbs a great part of the heat. The solution of alum should be made with cold water by placing in a pint bottle 2½ oz. of ordinary powdered alum and filling up with distilled water, and shaking occasionally for twelve hours and then filtering. After using, each time the cell should be emptied, well washed out, and then rinsed out finally with distilled water.

Analyser for Polariscope. See Polarising Apparatus.

Analysis, Spectrum. See Spectrum Analysis.

Aniline Colours. These are sometimes used for colouring lantern slides, but care should be exercised that only those dyes which are permanent to light should be used. See Colouring Slides.

Animalculæ Tank. See Tank.

Apochromatic Objectives. These are microscope objectives, which are sometimes used for projecting microscopic objects. Their use in photography and photo-micrography is attended with considerable advantages; but, with few exceptions, they are said not to be so suitable for lantern work. (See Microscope.)

Arc Lamp. See Electric Light.

Arc, Projecting the. It may sometimes be necessary to project the arc light itself, and this may be done by arranging the carbons on the open stage of a lantern and lowering the light in the lantern body considerably. If an arc lamp be used in the lantern, the lantern objective may be removed and replaced by a rather small diaphragm which acts as a pinhole.

Argand Lamp. Probably few of our readers have ever seen such a thing as an argand oil lamp, but they are still, we hear, occasionally supplied for lantern work on board ship and in hot countries. They are of two different styles, one with the oil reservoir below, the other with the oil reservoir at the back. The wick, however, is in all cases alike as a rule; that is to say, two metal cones concentrating the air upon the wick. Colza, sperm, or olive oil may be used, and the flame is rendered whiter if some camphor is dissolved in the oil. With a silvered glass reflector of circular form and having its centre of curvature in the flame, the light that can be obtained is equal to thirty-five candles. In argand lamps where the oil cistern is below the light in the body of the lantern, solid paraffin, tallow, or any other solid fat may be used. For some considerable time we have held the opinion that an argand oil burner of an oval form could be made which would give a much stronger light than any existent oil lamp, and we have lately seen two 4 in. wicks with a central air space which certainly gave a good light, but no better than a good three-wick lamp, whilst the heat is intense. We hope, however, to institute further experiments with the idea of heating the air supply, which one can only suppose would lead to a greater light. Argand gas lamps may be used, and will give a light of about twenty candles, but it is really of little use for any work requiring a disc of greater diameter than six feet, and then it is at its best on a wetted transparent screen. The heat too is by no means inconsiderable.

Astrometeoroscope is an instrument devised by Pilcher, and which is used for projecting the phenomenon of the persistence of vision. Very little seems to be known about this, but Mr. T. C. Hepworth, in "The Book of the Lantern," thus describes it: "The astrometeoroscope consists of a narrow box thirteen inches in length, and of such a width that at one end it will fit the stage of the lantern. At this end it has the usual three-inch disc opening, which is occupied by two plates of metal which are scored across obliquely with slits, and which are superposed one on the other, so that the slits on each cross one another diagonally. Now it is clear that the only places where light can pierce these plates of metal so as to make itself evident on the screen is in those places where the slits on the plates intersect one another. The effect on the screen, therefore, while the instrument is quiescent, is a series of dots of light all over the screen but at regular distances from another. By very ingenious mechanism the two plates are caused to move to and fro in contrary directions, and the speed of either can be varied at will by the operator. The effect upon the screen is most curious, for it seems to be covered with a lacework of geometrical patterns which constantly change their form."

(To be continued.) 62

* * *

A photographic exhibition was held at Ryde, Isle of Wight, on the 4th and 5th inst., under the auspices of the Ryde Exhibition and Horticultural Association. The pictures were not very numerous, but, the *Isle of Wight Observer* says, "were decidedly interesting. Mr. J. H. Gear exhibited several large photographs (22 by 16) so artistic in treatment that they attracted universal admiration." Messrs. J. H. Gear and A. R. Dresser appear to have had things very much their own way, taking the whole of the medals in the classes for which they entered. The awards were:—Landscapes, silver medal, J. H. Gear; bronze medal, A. R. Dresser. Marine, silver medal, J. A. Gear; bronze medal, A. R. Dresser. General, silver medal, A. R. Dresser; bronze medal, J. H. Gear. Hand-camera, silver medal, W. F. Mitchell; bronze medal, W. D. Welford.

Exhibition of Fine Arts.—In the public rooms, Bodmin, on 2nd inst., in connection with an annual sale of work of the Bible Christian Society, Mr. Arthur Jane collected and arranged an exhibition of fine arts, in which was shown a large collection of pictures of all processes, viz., oils, water colours, crayons, paintings on glass, pictures in needlework, photographic enlargements by Elliott and Son, Barnet, choice frames of photographs by Mr. H. Yeo, Plymouth, photographic enlargements coloured by local artists, and a very large collection of pictures and slides sent by the Editor of the Amateur Photographer, all of which were greatly admired. The exhibition was rather sparsely attended, owing possibly to other attractions of the day. At 8.30 p.m. the slides lent were passed through the lantern kindly lent by Mr. Tickell, who also acted as operator. The promoter intends at present to institute an annual exhibition, and to give prizes for water colours and photographs by local artists next year.

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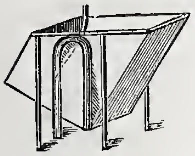

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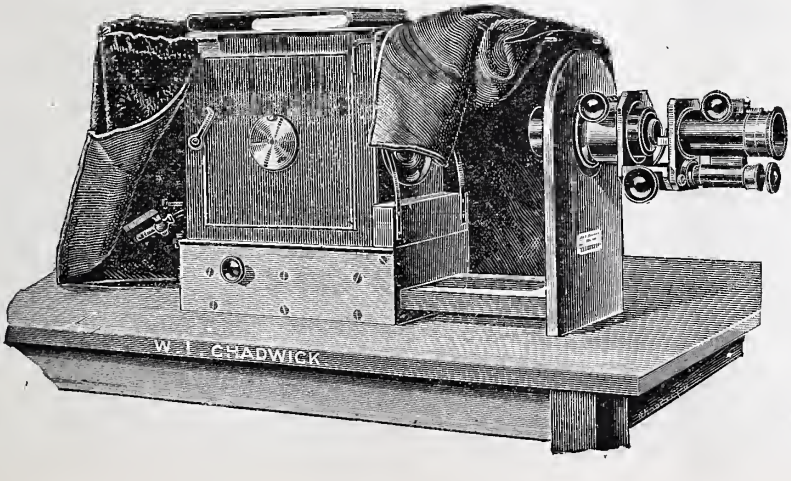

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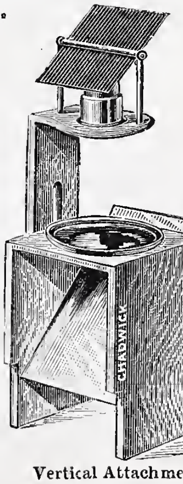

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MESSRS. FUERST BROS., of 17, Philpot Lane, E.C., the wholesale agents for amidol, have sent us the following new instructions for use:—

(1) CONCENTRATED STOCK SOLUTION.

Water	7 oz.
Sodium sulphite cryst. pure	1½ „
Amidol	60 gr.

May be kept for a long time in full bottles well corked.

For use mix one ounce of this concentrated solution with 3 oz. of water, and according to the make of the plates add a small quantity, at most twenty drops, of potassium bromide (1 to 10). In this state the solution may be used four or five times successively without much loss of developing power, but it is not advisable to leave the developer standing too long, nor to prepare more of it than necessary for the work in hand.

For landscapes or strongly lighted subjects the developer may be employed in a still more diluted form.

(2) SEPARATED DEVELOPER.

Water	20 oz.
Sodium sulphite cryst. pure	1 „

This solution will keep for any length of time.

For use 8 to 10 grains of amidol powder and a few drops of potassium bromide (1 to 10) are added to 4 oz. of the above solution. To be saved the trouble of frequent weighings, keep a little horn or bone spoon for measuring the required quantity of amidol. To retard development use a 10 per cent. solution of bromide, and to accelerate it add a 20 per cent. solution of sodium sulphite.

On very hot days or for plates inclined to fog, it is recommended to add a few drops of citric acid (1 to 10). With normal exposures the image should appear in from eight to ten seconds, and be fully developed in about four minutes. Over-exposure is recognised by the immediate appearance of the picture in all its details as soon as the developer is applied, the deep shadows becoming veiled, and all more or less fogged.

For over-exposure it is necessary to use a weak developer, and to increase very largely the quantity of bromide, using in extreme cases even up to one quarter bulk of the amidol solution.

In every case of unknown exposure it is advisable to begin with a weak developer, or one which has done duty before, and increase the strength, when from first indications it is found safe to do so.

For under-exposures a strong developer or a large addition of the sulphite is recommended, and these also help to give greater density, which end may likewise be secured by prolonging the development. The degree of intensity is best judged of by transmitted light, remembering always to make allowance for reduction in the fixing process.

(3) SPECIAL DEVELOPERS.

Solution A.

Water	20 oz.
Potassium metabisulphite	2 „
Amidol	1 „

This solution will keep for a very long time if well corked.

Solution B.

Water	20 oz.
Soda crystals	2 „

Solution C.

Water	20 oz.
Sodium sulphite cryst. pure	4 „

Results similar to pyro may be obtained with—

Solution A	10 parts.
„ B	6 to 10 „
Water	70 „
Bromide (1 to 10)	3 „

But this formula may be considerably modified according to requirements; it is not, however, advisable to increase the quantity of alkali for fear of inducing fog.

For over-exposed plates add the Solution B in the above formula little by little until the desired effect is obtained, never exceeding the amount above prescribed.

Images of a softer character are obtained as follows:—

Solution A	10 parts.
„ B	20 to 40 „
Water	70 „
Bromide (1 to 10)	½ to ¾ „

(4) SEPARATE DEVELOPER.

Solution D.

Water	20 oz.
Sodium sulphite pure cryst	⅖ „
Amidol	2 „

solution keeps colourless for a long time in full and air-tight vessels. When opened it goes from yellow to red, which, however, does not affect the developing power or coloration of plates.

Solution C.

Water	20 oz.
Sodium sulphite pure cryst.	4 „

For use take

Solution D	5 parts.
Water	50 to 70 „
Solution C	20 to 30 „
Bromide (1 to 10)	1½ „

This formula also has the advantage—by gradually adding Solution C—of controlling development up to the point desired, which is specially important for over-exposed plates.

As the image loses on fixing it is recommended to develop more strongly.

FOR SILVER BROMIDE PAPER.

Both for prints and enlargements either of the above formulæ may be used, and the freedom from stains will prove of great advantage. With diluted solutions clear grey tones are obtained.

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Transparencies of the blackest tones are developed with

Water	20 oz.
Sodium sulphite cryst. pure	1 „
Amidol	40 gr.

Warmer tones are obtained through longer exposure and the liberal addition of bromide even up to one ounce in the 4 oz. developer.

Exhibitions.

SOCIETY.	ENTRIES CLOSE.	OPENS.	CLOSES.	ADDRESS OF SECRETARY.
Louth	—	Jan. 26	—	S. Francis Clarke, L.D.S., 8, Upgate, Louth.
Cleveland Camera Club ...	Jan. 25	Feb. 1	—	J. J. Hallam, 11, Amber St., Saltburn-by-the-Sea.
Rotherham Photo. Society..	—	Feb. 7	Feb. 8	H. C. Hemmingway, 6, Stanley St., Rotherham
Durham City Camera Club...	Feb. 3	Feb. 14	—	R. Hauxwell, The Avenue, Durham.
Torquay Photo. Soc.... ...	Feb. 3	Feb. 14	Feb. 18	H. C. Howell, Nutley, Torquay.
Woolwich Polytechnic Phot Soc.	—	Feb. 16	Feb. 18	W. Dawes, 145, Chesnut Rd., Plumstead, Woolwich.
Holborn	—	Feb. 18	Feb. 20	F. J. Cobb, 3, Albion Grove, Barnsbury, N.
Manchester Amateur Photo. Society	—	Feb. 21	Feb. 25	Randolph Gilmore, 1B, Cooper Street, Manchester.
Fillebrook Atheneum ...	Feb. 20	Mar. 1	Mar 2	J. W. Spurgeon, 1, Drayton Villas, Leytonstone.
Forfar, N.B.	—	March	—	W. J. Anckorn, West Port, Arbroath, N.B.
Philadelphia (U.S.A.) Phot. Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.

Societies' Notes.

THE annual meeting of the North Middlesex Photographic Society was held on the 9th inst., the President (Mr. J. W. Marchant) in the chair. Two new members were elected. The Treasurer presented his balance-sheet, which was the best during the society's existence, and showed a sound financial condition. Mr. Pither gave a report of the results of the outings during the past season, and laid upon the table the society's album containing the selected pictures taken thereat. The certificate for the best collection of prints taken at those outings was awarded to Mr. McIntosh, the Hon. Sec., and the second award, that of a view album, which could only be won by a non-member of the Council, was secured by Mr. A. J. Hewson. The annual report was then submitted by the President. He dealt with the satisfactory condition of the society generally, the increased membership, the greater interest taken by the members in the meetings, as evidenced by the ready help given by them in reading papers and opening discussions, and especially dwelt upon the advance in the quality of the work shown at the late exhibition as expressed by the judges. Reference was made to the affiliation scheme and the advantages to be derived therefrom, and thanks were given to those gentlemen not members of the society who had rendered assistance by their lectures. Votes of thanks were accorded to the officers for their past services. Mr. McIntosh stated that finding himself unable to give the requisite time to the secretarial duties, he did not seek re-election. Balloting for the officers for the ensuing year was proceeded with, and resulted as follows:—President (third consecutive year), Mr. J. W. Marchant; Vice-Presidents, Messrs. C. Beadle and F. Cherry; Hon. Treasurer, Mr. F. W. Cox; Council, Messrs. H. Smith, Gregory, Walker, Wall, Gill, Mummery, Pither, W. Taylor, Golding, Wynne, Lathbridge, Treadway, and Goodwin; Hon. Secretary, Mr. Geo. Gosling: Hon. Assistant Secretary, Mr. F. M. Aynsley. Mr. John Humphries, F.S.A., who was President of the Society during the first three years of its existence, but who is now resident away from London, was unanimously elected an honorary member. Gentlemen desiring in any way to communicate with the society will please address the Hon. Secretary, Mr. Geo. Gosling, 13, Lausanne Road, Hornsey, N.

* * *

THE Huddersfield Photographic Society has been amalgamated with the Huddersfield Naturalist Society, under the title of the Huddersfield Naturalist and Photographic Society. Mr. Alfred Clarke, St. Andrew's Road, Huddersfield, is Hon. Secretary, to whom all communications should be addressed.

* * *

THE RICHMOND CAMERA CLUB CONVERSAZIONE.—The Richmond Camera Club, which last year held its annual conversazione in very modest fashion at the College Hall, this year launched out in much bolder style, taking the Richmond Theatre Royal for the purpose, on Monday, January 9th. The venture was a distinct success, both as regards the number that attended (over 350) and the character of the entertainment that was given. A feature of the evening was the arrangement of the ground-floor of the theatre, which, we heard remarked by many visitors, looked "quite like a drawing-room." The seats were removed, only a few velvet-covered stalls being retained and placed here and there in such positions as to allow free passage for those present to view the select exhibition of photographic work done by members of the club, which was displayed on screens along the sides of the arena. Refreshments were served at two tastefully arranged counters under the gallery, which were practically curtained off from the main body of the theatre. From the neatly got up programme we see that there were seven musical selections, sandwiched between four optical lantern displays in which, altogether, some 180 slides were shown on a sixteen feet screen at a distance of sixty feet from the lantern. For those whose memories go back to the Photographic Exhibition held in Richmond in 1889 in a part of the same building, the improvements arrived at during the intervening period, especially in the way of artistic effect, were very noticeable. The Mayor and Mayoress, many of the Town-Councillors, and the élite of the neighbourhood honoured the soirée by their presence.

* * *

WE are informed that H. H. the Duke of Teck, G.C.B., etc., has kindly consented to become patron of the Richmond Camera Club.

* * *

THE WEST KENT society held their first exhibition (members' work only) on 12th inst. The President, Mr. Andrew Pringle, opened the exhibition with a short address. Mrs. Pringle then presented the following medals to the winners: Class A—Lantern slides, set of twelve, any subject, President's silver medal, E. J. Crowe; society's bronze medal, Gregor Grant. Class B—Enlargements, Vice-President's silver medal, E. Hawkins; bronze medal, E. J. Crowe; diploma, G. J. Gill. There were a large number of entries in this class, and a very tough contest. Class C—Set of four prints (a good number of entries), society's silver medal, E Hawkins; bronze, Gregor Grant; R. H. Pickell was awarded an extra special diploma for his photograph of lightning taken in June last, showing a most vivid flash. Class D—Hand-camera work, not sufficient entries for an award; E. Hawkins very highly commended. The judges were Messrs. Cembrano, Pringle, and Dresser. The programme of the evening consisted of a good selection of music, with lantern shows at intervals; slides by Messrs. Carpenter, Edgar Lee, Pringle, and Dresser were shown and much appreciated by audience. A very enjoyable and successful evening was spent, the hall being well filled.

* * *

THE members of the Potteries Amateur Photographic Society are to be complimented on the good work they are doing, for almost week by week one or other of them gives a magic-lantern entertainment for charitable purposes. Hospitals and many other institutions have benefited considerably by the kindly zeal of the amateurs, and only a few days ago Mr. E. B. Wain, the President, gave a very interesting little exhibition at the Williamson Street Mission-room, Tunstall. The very beautiful collection of slides exhibited are all by members of the society, from photographic negatives of their own production, and are chiefly of local subjects. Needless to say, these entertainments are much appreciated, and are earning quite a reputation for the society.

* * *

THE BLACKHEATH CAMERA CLUB will hold an exhibition at the Hall of the Art Club, Blackheath, on March 3rd and 4th. The following are the classes and conditions:—Classes: A (for members only)—Prints: any subject by any process; B (for members only)—Lantern slides: any subject (sets of four); C (open)—Prints: landscape, seascape, architecture, etc, any process; D (open)—Prints: portraiture, animal and genre, any process; E (open)—Lantern slides: any subject (sets of four); F (open)—Hand-camera work: any subject, taken with camera held in hand, not on tripod (sets of four prints); G (championship)—Any subject by any process: open only to pictures that have taken first and second-class prizes in any previous exhibition. Awards—Silver and bronze medals in Classes A to F, and a gold medal in Class G, will be placed at the discretion of the judges. Judges—Messrs. F. P. Cembrano, jun., Geo. Davidson, and Andrew Pringle. Hon. Secretaries, Thomas B. Earle, The Cottage, Handen Road, Lee, S.E.; C. W. Piper, A.R.I.B.A., 46, Shooter's Hill Road, Blackheath, S.E. Regulations—(1) The exhibition will be held in the Hall of the Art Club on Friday and Saturday, March 3rd and 4th, 1893. (2) All exhibits for competition must be the entire work of the exhibitor, with the exception of mounting and framing. (3) Any picture which has previously received an award in an open exhibition (photographic journal competitions excepted) cannot compete in Classes C to F. (4) Each competitor must fill up the entry form supplied by the society, and send the same with entrance fee to Mr. C. W. Piper, 46, Shooter's Hill Road, Blackheath, S.E., on or before February 22nd, 1893. (5) All prints for competition must be framed (Oxford frames debarred), and have the exhibitor's name and address, title of picture, and class entered for, inscribed on the back. Any competitor's name appearing on the front will be covered during the judging. Competitor's names must not appear on lantern slides, but have a mark or number for identification, corresponding with entry form. (6) All exhibits (except lantern slides) must be delivered at the Art Club, Blackheath, carriage paid, between February 27th and March 1st, addressed to the Secretary of the Blackheath Camera Club. Lantern slides to be sent to Mr C. W. Piper, 46, Shooter's Hill Road, by February 28th. Every possible care will be taken of the exhibits whilst in the Society's custody, but the Council will not hold themselves responsible for any loss or damage arising from fire, accident, or any other cause. An experienced packer will be employed to repack exhibits, and the same will be despatched as soon as possible after the close of the exhibition. (7) The entrance fee in each open class to be 2s. Any number of exhibits may be sent in for any class. A separate entrance fee to be paid for every four frames or three sets of lantern slides. Members' classes free. (8) No exhibitor shall take more than one medal in any class. (9) The judges' decision shall be final on all points. (10) The Council shall have full power to refuse any work at their discretion. Not for competition.—The Council will be glad to receive pictures not for competition, and will pay carriage both ways for the work accepted, such work to be distinctly marked "Not for Competition." Photographic apparatus will be received for exhibition, subject to the rules to be obtained of the Secretaries.

Societies' Meetings.

Accrington.—The monthly meeting was held on the 9th inst., Mr. B. T. Westwell in the chair. A large number of members assembled to witness demonstrations in "Platinotype Printing,' cold-bath process, by Mr. Cheney. The simplicity of the process and the magnificent results achieved, astonished and delighted every one present, and great credit is due to Mr. Cheney for the masterly manner in which he dealt with the subject. Dr. Geddie exhibited a fine copy of the famous wave study by Messrs. Elliott, and Son, and this was very much admired.

Aston (Nat. Hist.).—On the 12th inst. a lantern exhibition was given, and the large attendance proved the popularity of lantern displays. Slides were exhibited by Messrs. Tylar, Cracroft, Priddin, Green, and C. P. Nevill, and included scenes from all parts of the British Isles. The names of the exhibitors are a sufficient guarantee of the quality put before the limelight. The numbers of the society are increasing, but any who are desirous of becoming members are asked to communicate with the Hon. Secretary, Mr Fred. W. Pilditch, 133, Wills Street, Aston.

Belfast (Y. M. C. A.).—The monthly meeting was held on 8th inst., Mr. B. D. Wise, C.E., in the chair. After the prints and slides in the monthly competition had been examined, the Secretary gave a demonstration on "Lantern-Slide Making by Contact and Reduction." For the latter a Pearson and Denham reducing apparatus was used, with half-plate Taylor lens at $f/11$, with twelve inches of magnesium ribbon for the illuminant. Successful slides were made on Edwards' and Mawson's plates with pyro and ammonia developer. A large number of members were present and thoroughly enjoyed the meeting, several taking part in the development of the trans-

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By JOHN A. HODGES.

CONTENTS.

Introduction.—Section I. Slide-Making by Reduction: The Apparatus. Reducing by Artificial Light. Cleaning and Preparing Glass. The Negative.—Section II. The Reduction Process: The Wet-Collodion Process. The Gelatino-Bromide Process.—Section III. Lantern Slides by Contact-Printing: Working by Artificial Light. The Gelatino-Chloride Process.—Section IV. Gelatine Emulsions Suitable for Transparency Plates—How to Make: Gelatine Process. The Collodio-Bromide Process. The Albumen Process. The Carbon Process.—Section V. The Final Treatment of the Slide: Colour, Toning, and Intensification. Printing in Clouds. Mounting, Binding and Finishing Slides. Celluloid Lantern Slides.

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parencies. On 14th inst., in the large hall of the Association, the prize lantern-slides of a contemporary were shown on a 15 ft. screen. The lantern used was by Lizars, of Glasgow and Belfast, having many recent and novel improvements introduced. Musical selections were given at intervals during the evening, and added greatly to the enjoyment of all present.

Birkenhead.—The monthly meeting was held in the absence of Dr. W. H. Hunt, the President. Mr. C. B. Reader took the chair, and had the pleasant duty of distributing the medals for the annual competitions as follows:—Landscape, silver, Mr. C. J. Legge; bronze, Messrs. W. T. Briggs and W. Tomkinson. Hand-camera work, bronze, Mr. W. T. Briggs. Best picture of the year, bronze, Mr. C. J. Legge. Lantern-slides, silver, Mr. W. T. Briggs; bronze, Mr. J. H. Welch. The veteran, Mr. J. A. Forrest, one of the fathers of photography in Liverpool and Birkenhead, exhibited a fine series of highland landscape, kindly lent by Messrs. G. W. Wilson and Co.

Birmingham (Phot. Union).—The first annual meeting was held on the 13th inst., Mr. Prince in the chair. The following officers were appointed:—President, R. Prince; Vice-Presidents, S. Delicate and W. P. H. Foster; Treasurer, W. J. Dunn; Secretary, Victor E. Gilmer, Cannon Street. A book of rules and bye-laws was unanimously passed, and will be distributed when printed. On Friday, January 27th, there will be an exhibition of the National Competition prize slides; upwards of 300 will be shown.

Bristol.—The annual meeting was held on the 13th inst. Mr. H. A. Hood Daniel was re-elected President, Colonel Playfair and Mr. Edward Brightman Vice-Presidents, Mr. F. Bligh Bond Hon. Secretary, with Mr. H. A. Hutchinson as Assistant-Secretary, and Mr. W. Moline as Treasurer. The existing members of the Council were re-elected. Messrs. Cadett and Neall sent a case of sample packets of their Lightning plates, which were distributed.

Darlington. — At the usual monthly meeting held on the 9th inst. a paper by Dr. Paul Jeserich, entitled "Photography Applied in the Detection of Crime," was read to a large and deeply interested attendance of members. The lecture was illustrated by lantern-slides, shadowed on the screen by the Society's oxy-hydrogen lantern, manipulated by the President (Rev. C. G. Davis). The paper and slides were lent by the P. S. G. B., with which this Society is affiliated. One new member was elected, and one candidate for membership nominated.

Durham.—At a special meeting held on the 12th inst., Councillor E. White in the chair, Mr. S. G. Buchanan Wollaston gave a very interesting and instructive demonstration on the platinotype process. The annual meeting of the club will be on Thursday next.

Fairfield.—The monthly meeting was held on the 10th inst., when a large number of members were present. The chair was taken by the President, Mr. H. J. Mallabar. The subject for the evening was the exhibition of a "Simple Enlarging Camera, how to Make and Use It," by Mr. T. E. C. Wilson. In bringing this ingenious invention before the club Mr. Wilson said it was a very cheap method of obtaining enlargements, the cost only being about 2s. That it was also effective he afterwards conclusively proved. He then gave measurements and explained how he arrived at the focus, after which he practically demonstrated the usefulness of the camera by making some excellent enlargements by magnesium ribbon. In connection with this club a very excellent syllabus is being formed for the present year, including a series of lectures on "Carbon Paper,—its various Processes," by the late President, Mr. Mackrell, which will be looked forward to with great pleasure.

Hackney.—Ordinary meeting held on 11th inst., Mr. J. Traill Taylor presiding. Messrs. H. Snowden-Ward and W. Harvey were nominated for membership. Mr. Gosling showed lantern slides on Paget print-out lantern plates. Mr. Hudson showed a lantern slide printing arrangement of design originally given by him, and Mr. R. Beckett handed round a Ross Concentric lens. The Chairman said the chief advantage of this was its extreme flatness of field. From the question box:—If a short and long focus lens are both suitable for a subject, which is best to use? The Chairman said for this time of year short focus was perhaps the best; at any rate, it would be for copying. Generally, however, a long focus was best for most purposes. Question 2: Is there any difference in working Solio paper in winter to summer? Answer: None. Question 3: Can a bag (gas) that has got stiff be softened? Answer: Best to keep bags in fairly warm temperature. No other answer was forthcoming as to how to renew. Question 4: Is there any advantage in using a Monocle lens? Mr. Horsley Hinton said it depended what result was required. The word wanted properly defining. Mr. Grant thought it suitable for fuzzy pictures. The Chairman, however, did not quite agree. Mr. Dean showed a frame of lantern slides, and asked what was the best means of backing them in place of opal glass. The Chairman advised a mixture of collodion and ordinary spirit varnish. Mr. Paget (of C. A. Rudowsky and Co.) explained their flash-lamp, and stated that to obtain a continuous flame a double ball was necessary. The Chairman then called on Mr. Horsley Hinton for his paper, "Some Contributions to Artistic Effect." Mr. Hinton then, at length, went into the question of suitable frames, mounts, etc. Photographers nowadays thought too much of size of plate, and were afraid to use knife and scissors, so that often what would have been a good picture was spoilt by not taking out objectionable pieces. Among his remarks he said he was looked upon as a champion of fuzzy effects, but must disclaim it. He could admire a sharply defined picture, and often used a small stop. A very great contributory was reflection. Too much hurry was the case nowadays. The Chairman asked what Mr. Hinton's ideas were about the hand-camera. Mr. Hinton said it was to the camera proper what the sketch-book was to the artist. The Chairman said that with respect to gilt frames he had some pictures in common gilt frames, and which he preserved by the use of solution of celluloid in acetone (amyl). In answer to a question raised about lantern slides, Mr. Hinton said the uncontrollable result produced on the screen stood in the way of their always being complete pictures. Mr. Hinton then summed up generally on remarks. He could not give a rule as to when pictures should be broadly treated; experience and judgment must decide that. The idea was to interpret nature as it appeared to impress one. Excursions were generally hurried over. It was more advisable to go, but leave the camera at home until details were fully thought out.

Kensington and Bayswater.—A meeting was held on the 16th inst. Mr. Robertson presided. Mr. Morgan, representing Messrs. Fuerst Bros., the agents for amidol, gave a demonstration on development of negatives, etc., by that chemical. He showed bromide prints from one negative which had received exposures varying from one to ten minutes, each print being considered of good density and tone. The leading qualities which he claimed for this developer are its freedom from producing stain when dissolved, either upon the hands, plate, or paper, though the crystals themselves, if allowed to remain in contact with the hands, will produce a brown stain. Mr. Davis, of the Camera Club, who was also present, and who has experimented with this new developer probably more than any one else, especially in the development of lantern slides, kindly gave his new formula for development, which produces warm tones only. He stated that he considered the ordinary formula used for the development of lantern plates by amidol made a too active developer, veiling the plate before development was complete. His practice is to use a strong developer well restrained. His formula is as follows: Amidol 160 gr., metabisulphite of potash 2 oz., water to 20 oz. This is the stock solution. Of this take half an ounce, and add to it one ounce of a ten per cent. solution of bromide of ammonium, and water to 2¾ oz.; then add a quarter of an ounce of a ten per cent. solution of carbonate of potassium. This will develop twelve or fourteen lantern plates.

Leeds.—The Leeds society held its first meeting of the year on 12th inst. Mr. J. H. Walker, President, occupied the chair and delivered the customary presidential address on his accession to the office; he reviewed, in a pleasing and instructive manner, many interesting features of photography in the past and present, and prospects in the future; and urged the members of the society to be earnest and diligent in their work, the advanced members not to hesitate to give the benefit of their experience to the younger members, and the tyros not to be backward in stating their difficulties, and seeking for information at the meetings: in this way, together with the excellent syllabus which has been prepared for the year, the society should be unusually prosperous. Some beautiful coloured lantern slides by the Sciopticon Company were thrown upon the screen, and proved that artistic work can be done in this way in spite of our general dislike to coloured slides. The Pall Mall prize slides were next exhibited, and were much admired.

Liverpool (Camera Club).—The usual meeting was held on 11th inst., under the presidency of Mr. James Hawkins. The subject for the evening was a lecture on "Art in Relation to Photography," but, owing to the unavoidable absence of the lecturer, Mr. F. Anyon, it was postponed until a future meeting, and in its place a members' lantern slide exhibition was held. Some 120 slides, contributed by various members, were passed through the lantern, and criticisms passed thereon. The conversazione and annual exhibition is to be held in the Club rooms on Tuesday evening, February 7th.

Newcastle.—The monthly meeting was held on the 10th inst., the President, Alex. S. Stevenson, J.P., in the chair. Mr. S. G. B. Wollaston, of the Platinotype Company, was in attendance to give his lecture and demonstration of the new cold-bath platinotype process. The lecture was lucid and interesting, and the demonstration most complete. The attendance was the largest on record, and an enthusiastic vote of thanks was accorded to the lecturer. The annual meeting and election of officers will take place on Tuesday night, January 24th.

North Middlesex.—On the 4th inst. the first of a series of technical evenings for beginners was held, the subject being "Development." The subject being treated in a purely elementary manner, the general body of members were not invited to attend. A fair number of gentlemen, among whom were several strangers, availed themselves of the opportunity afforded them. They each brought two exposed and undeveloped plates, and were in their turn taken in hand by Mr. C. Beadle, who was the instructor for the evening. He opened with a brief description of the various developers most generally in use, their advantages and failings, the correct method of compounding them and of modifying them to suit the different exposures and subjects. He then questioned each gentleman as to the exposure given to the plate he had brought, and the general conditions under which it was taken, and advised him as to the best method of developing. He then set him to mix the developer, and stood by while the plate was developed, giving advice during the process. The meeting was thoroughly successful, the gentlemen present expressing their gratification and a desire to attend future meetings of the same character. Due notice will be given of the next meeting.

Phot. Soc. G. B.—Ordinary meeting 10th inst., Mr. T. Sebastian Davis, F.C.S., in the chair. A new member was elected. It was announced that the Lincoln Camera Club had that evening been affiliated. Messrs. W. Atkinson and T. Samuels were elected auditors. Messrs. A. C. Brabam, J. D. England, T. E. Freshwater, J. R. Gotz, W. Atkinson, H. A. Lawrance, and Charles Sawyer were elected scrutineers. In the absence of Mr. John Spiller, his paper on amidol and metol was read by Miss Spiller. Mr. A. R Dresser said that in the case of amidol it was of great importance to avoid over-exposure. He considered it the best of all developers for bromide paper. He had obtained the best results by taking—Amidol, 1 oz.; potassium metabisulphite, 1 oz.; water, 10 oz. For use, he took the above solution, 16 dram.; 5 per cent. solution carbonate of potassium, 14 dram.; 10 per cent. solution bromide of potassium, 2½ dram.; water, 20 oz. At this strength a black tone is obtained, which dilution of the developer makes greyer. Mr. G. P. Addenbrooke said that there was a certain amount of free sulphurous acid in metabisulphite of potassium, which acted as a restrainer, and rendered the use of this salt preferable to that of the sodium sulphite. A much-restrained developer gave warm tones. Mr. A. Mackie asked how free sulphurous acid could act as a restrainer when no development could proceed unless the solution was alkaline. Mr. T. Bolas said that in dilute solutions reactions often required a considerable time. Mr. Chapman Jones read a paper entitled "A Chemical Study of Mercurial Intensification." Mr. W. E. Debenham regretted Mr. Jones had not treated of the method with iodide of mercury and Schlippe's salt, which he had found more convenient than any other. He claimed for it a greater increase of density, and the power of stopping the action at any time. Where the iodide caused a deposit in the shadows of the negative, he should consider insufficient washing to be the cause. Mr. Chapman Jones said he should be glad to follow up Mr. Debenham's suggestion, but he was rather shy of both iodides and sulphides. His objection to the Schlippe's salt and similar methods was that they produced a thorough change in the constitution of the image, and then could not be reintensified or otherwise treated like the original image. The Hon. Secretary, owing to the lateness of the hour, was only able to read a resumé of a paper by Col. Waterhouse on guaiacol and allied phenoloid compounds as developers.

Putney.—Ordinary meeting held on 12th inst., Mr. H. Faulkner in the chair. Mr. Henry Kimber, M.P., was elected a member of the Society. Mr. E. L. Morgan, representing Messrs. Fuerst Bros., kindly gave a lecture and demonstration on development with amidol. In a short preface Mr. Morgan claimed for amidol the following important advantages: good keeping qualities in its dry state, ready solubility, cleanliness during manipulation, great energy in bringing out detail without the addition of free alkali, power to give the necessary density, and absence of stain even in prolonged development. Comparing amidol with other developers, he said that experienced workers might perhaps be prejudiced against it, as, practically being a one-solution developer, they might think they were sacrificing some of the power which they possessed in older developers of readily modifying the proportions of the constituent parts to meet the requirements of varying subjects, and of over or under-exposure; he would, however, prove that amidol also was quite capable of such modification—in cases of over-exposure by using a weak solution and an extra quantity of bromide, for under-exposure a strong solution and only a small quantity of the bromide. For uncertain exposures it was desirable to begin with a weak developer and gradually increase the strength as occasion required. The ordinary stock solution, two per cent., is made up as follows:—Amidol 10 gr., sodium sulphide crys. 100 gr., water 1 oz. This solution will keep well in full bottles well corked, and although after a time it may discolour, it does not lose its developing power to any extent, nor does it stain the negatives or prints in any way. For use dilute the stock solution with three to four times its bulk of water, five to twenty drops of a ten per cent. solution of bromide of potassium being added for each ounce of stock solution. This diluted solution may be used successively four or five times without losing developing power to any extent. For his own use Mr. Morgan preferred to keep the following stock solution, which will keep for any length of time:—Sodium sulphite crystal. 1 oz., water 20 oz. For use 8 to 10 gr. of amidol powder, and a few drops of potassium bromide (1-10) are added to 4 oz. of the above solution. Mr. Morgan then proceeded to develop a negative which had purposely been given a somewhat short exposure, using the ordinary strength of developer; the image appeared in about thirty seconds, showing full detail in that time; development being allowed to proceed, the necessary density was obtained in about three minutes; the result was a brilliant and soft negative of a good printing quality. As showing the capability of amidol for developing bromide paper, he exposed a piece under a landscape negative, and proceeded to develop with a solution of the same strength as that used for the negative. In this case also the result was extremely satisfactory, the tone of the print being very like a good platinotype. No clearing bath was necessary, and the manipulation throughout of the simplest. To prove that amidol is really a good all-round developer, Mr. Morgan proceeded to expose two lantern plates, giving the one an exposure of one minute, and the other six minutes; still using the same strength of developer, but in the latter case with an additional quantity of bromide, he produced two very brilliant and satisfactory slides. During the demonstration, the members put many questions to Mr. Morgan, which he very ably answered. It was apparent as the demonstration proceeded that the members were agreeably surprised at the powers of amidol, particularly as the experiences of some of them with other developers recently introduced with great flourish of trumpets were of a disappointing nature, only confirming them in their preference for their old and tried friend "pyro." Mr. Morgan brought several bromide prints for inspection, but a portrait of a native of Morocco, a very fine enlargement by Mr. Gorin, and developed by him with amidol, showed most strongly that good results can be obtained with it without previous experience by an amateur, this having been Mr. Gorin's first attempt with the new developer. A hearty vote of thanks to Mr. Morgan concluded an enjoyable and instructive evening.

SOCIETIES' FIXTURES.

Jan. 20.—GLASGOW HIGH SCHOOL.—Address, Mr. William Milne, M.A., B.Sc., etc.
„ 20.—HEREFORDSHIRE.—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
„ 20.—LEWISHAM.—"A Visit to Rochester," Mr. A. H. Miles.
„ 20.—HOLBORN.—General Discussion on "Improvements in Photography in 1892."
„ 20.—CROYDON (Micro.)—1893 Convention Slides.
„ 23.—RICHMOND.—"Photography applied to the Art of Printing," Mr. J. H. Alabaster.
„ 23.—GLOUCESTERSHIRE.—"The Platinotype Process," Mr. S. Buchanan Wollaston.
„ 23.—CAMERA CLUB.—"Testing New Slides in Studio."
„ 23.—PUTNEY.—"Ramble with a Camera in North Wales," Mr. John A. Hodges.
„ 23.—CORNISH CAMERA CLUB.—"Development of Platinum Prints."
„ 24.—W. LONDON.—"The Royal Palaces of England," illustrated by lantern slides, Mr. H. W. King.
„ 24.—E. LONDON.—Ordinary meeting.
„ 24.—HACKNEY.—"A Day in the Zoo," Lantern Exhibition, Mr. Lewis Medland.
„ 24.—NEWCASTLE-ON-TYNE.—Annual Meeting.
„ 25.—THE PHOTO CLUB.—Lantern and Musical Entertainment (Ladies' Night).
„ 25.—BATH.—"Tour in the Channel Islands," Mr. W. Pumphrey.
„ 26.—THE PHOTO CLUB.—Children's Entertainment at 6.30.
„ 26.—LOUTH.—Annual Exhibition at Town Hall.
„ 26.—LIVERPOOL.—"Robinson's Picture Making by Photography," Mr. C. W. Hastings.
„ 26.—OLDHAM.—Lecture: "To Oberammergau and Back in 1890."
„ 26.—LONDON AND PROVINCIAL.—"Photographing Paintings by Artificial Light," Mr. W. E. Debenham.
„ 26.—CAMERA CLUB.—"Development—not Exposure—the Determining Factor in Photographic Procedure," Mr. H. E. Armstrong.
„ 26.—ASTON.—"How to Make a Lantern Slide," Mr. George Pridden.
„ 27.—HOLBORN.—Lantern Night, P.S.G.B. 1892 Slides.
„ 27.—CROYDON (Micro.)—Technical Evening.
„ 28.—HULL.—"Mounting."

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

Rules.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume.*
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer questions by post.
6. In answering Queries, correspondents are requested to mention, in every instance, the *number and full title of the query* referred to.

QUERIES.

5910. **Development.**—In the developing of a plate after all detail is distinctively visible, to obtain a "suitable density," how long should it remain in the developer? Is it guess work, or should it be carried until there is no image to be seen? I will thank any of your readers for information.—Beginner.

5911. **Folding Stand.**—Can anyone tell me how to make a folding stand and stretcher for 6 ft. lantern screen?—Notregre.

5912. **Pyro Tabloids.**—What is the proper working with Burroughs and Wellcome's compressed pyro tabloids? As directed, I dissolved two pyro in 9 drm. water and two accelerators in 1 drm., using the latter a few minims at a time as a normal developer. Image took a quarter of an hour to appear. Result, a very poor, thin negative; whereas normal hydroquinone developed plates exposed at and for same time into good strong negatives.—H. R.

5913. **Heating of Studio.**—Shall feel glad if any one will kindly give me their experience as to the best and cheapest way to heat a studio 20 ft. by 10 ft. by 10 ft., built in a garden. Would a mineral oil system be the cheapest to maintain?—Zero.

Correspondents not seeing their queries inserted are requested to look for the same under "Editorial."

QUERIES UNANSWERED.

Nov. 25th.—Nos. 5880, 5881.
Dec. 2nd.—Nos. 5886, 5890.
,, 9th.—No. 5894.
,, 16th.—No. 5900.
,, 23rd.—Nos. 5902, 5903.
Jan 6th.—Nos. 5906, 5907, 5908, 5909.

ANSWERS.

5905. **Gelatine.**—For some years I made my own emulsion for gelatine plates. I tried several makes of gelatine, but I found Nelson's No. 1, in 1 lb. packets, to be the best. Coignet's (a French gelatine), although harder, was found by myself and others with whom I experimented, to be unsuitable, as it resulted in "tear marks," or perhaps more like the marks which small-pox usually leaves, owing, I believe, to some greasy matter in its preparation. Nelson's will take up a good deal of water, and this should be taken note of when making the emulsion.—C. J.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week This we much regret.*—Ed. Am. Phot.

R. D. R. C.—(1) Probably you want your lamp nearer the condensers. In our experience the fault you complain of is common with four-wick lamps. Try ground glass behind the negative next to condenser. (2) Cut out circular cardboard stops and unscrew the front lens of your objective, and insert midway between the tube. In our issue of April 22nd, 1892, in Notes on Enlarging, you will find a useful hint on this subject. The field of your lenses is too curved to enlarge sharply to the edges. (3) By using ground glass, and shifting your lamp, you will probably get the illumination all right. It may happen that the projection lens is not corrected for photography. (4) By using magnesium ribbon you can illuminate your negatives and obtain short exposures. (5) No, the amp would be useless.

Miss Watson.—There will be no ladies' competition this year.

H. F. Linging.—Many thanks for letter and contents, which we had already noted.

J. T. French.—We regret our inability to insert your letter; so far as we are concerned, the incident is closed, and must remain so.

Roy.—Increase your exposures. You are under-exposing considerably. Try one sheet of paper, and give it 2 min., then cover up one quarter and give an extra minute, then cover up half and give another minute, and so on. On developing you will have a print showing four distinct degrees of exposure, and you can easily guess which is right.

Fdree.—(1) Printed a little too deep, too much foreground, and wants clouds. (2) Too much foreground, and wants clouds, otherwise correct. (3) Only wanted a little farmyard life in the front to make a picture. (4) Over-printed and over-toned, flat and poor, and no interest artistically. (5) Over-exposed, negative wants intensifying.

R. C. Gould.—(1) Yes, but it requires longer exposure and more careful use. We should advise Amidol as giving softer negatives. (2) No, pyro is the standard. (3) For negative work we like

I.

Quinol	154 gr.
Sodium sulphite..	1½ oz.
Sulphurous acid..	17 m.
Distilled water to	10 oz.

II.

Sodium carbonate (pure)	1,300 gr.
Caustic potash	154 ,,
Distilled water to	10 oz.

For use mix in equal parts, and dilute with twice or three times the quantity of water. (4) It all depends on what stains they are. If iridescent or metallic in colour, they can be removed by a bath of ferric chloride and bromide of potassium. If yellow stains, Edwards' alum and iron clearing bath is best. (6) Gelatino-chloride prints toned in a combined bath are as permanent, we believe, as prints toned and fixed separately, provided—and it's a big provided—the combined bath is properly used. The prints should be well washed first, the bath should contain no alum, and should not be used too long, and to ensure perfect fixation a second fixing bath should be used. (5) Set up your camera and focus the sun or clouds sharply on the ground glass, measure the distance between the diaphragm slot and screen, and divide this distance by the diameter of the stop aperture. (7) For gelatino-chloride paper, grey tones, use

Bicarbonate of soda	90 gr.
Gold chloride	2 ,,
Distilled water	10 oz.

and tone till all brown has disappeared from the shadows; in fact, over-tone considerably. We do try and keep out the wrangles, but they will come in somehow. We are full up this month, but will book the paper for next.

Osbert.—You had better give up the ammonia. So far, we have been unsuccessful ourselves with the plates and ammonia, which only bears out the maker's injunction. On p. 479 you will find a note on rational development which will help you.

A. M. Z.—To estimate the distance of objects for hand-camera work is merely a matter of practice, and in a short time becomes easy. We have not seen B camera, whilst A we have used for some time with satisfaction and can show you it any time you call.

Norwood.—You do not state at what distance the objects are. For really distant work, Dallmeyer's Telephoto lens is the only one to use, but for ordinary work a long-focus landscape lens would answer your purpose; for a half-plate, a 14 or 16 in. You can easily decide the focus you would like, by remembering that increase of focal length increases your image in like proportion; thus if a 11 in. give an image 1 in. in height, then a 17 in. will give an image 2 in. in height from the same standpoint.

S. Allpress.—We hear that the man's brother will clear off all liabilities, so we should advise you to write him.

John Daniell.—The sole right to the said slides rests with the gentleman named.

Vicar.—(1) The focus of your lens is rather long for snap-shot work; we think 6 in. the limit, but if you must use your lens, then have a 5 by 4 plate. (2) It would be possible to use any lens as a companion to your 7½ in. Ross; it would be merely a question of very careful adjustment of the two. It would, in fact, be possible to use a cheap single landscape lens.

N. D. F. Pearce.—Your print is about the strongest proof of the truth of our remarks it is possible to get. It looks like a print from a negative taken on a snowy day with faint sunlight. There is certainly not the slightest idea of moonlight. Technically the print shows careful work, and you ought to be able to turn out something worth looking at. Do you want print back?

A. G. Paterson.—(1) We should choose No. 3. (2) Yes, we prefer a lens, which will focus and has various sized stops.

W. Holliday.—A guide to crystoleum printing is published, price 1s., by the Crystoleum Company, 76, High Holborn, E.C. A note on it appears in Amateur Photographer, August 23rd, 1892, p. 131.

H. Hannant.—(1) Very much over-toned, and lights too patchy to be artistic. (2) Rather better, but over-toned. (3) Ditto, wants an inch off top and bottom, over-printed too.

F. Barfoot.—(1) Hydrofluoric acid 1 drachm, water 20 oz., is the right strength. (2) Yes, the camera is suitable.

J. Niven Murdoch.—Letter by post.

A. T.—We can let you have some good prints, but negatives are rather more difficult to get hold of.

Dorset.—We really do not know whether compressed oxygen can be obtained in Cape Town. The steamship company will carry oxygen, we believe, but at high rates, we think. Dealers at Cape Town: Pocock, 7, Short Market Street; Heynes and Matthews, Adderley Street; Lennon and Co.; and at Port Elizabeth, E. London, and Johannesberg.

Psyche.—(1) See advertisement, p. viii., January 13th, 1892. (2) Some impurity has been carried into the bath by the paper, or the gold has been converted into a stable soda salt which will not tone. If you add a few drops of strong hydrochloric acid, and then neutralise with soda, it will tone alright. (3) Back numbers can be had, price 2d. each. (4) Shall be pleased to lend you prints as you desire. We will pick some out and forward to you, or it would be better if you applied for the "Holidays with the Camera" prize prints; you will see far more and much better work. (5) Your print is very fair, but just wanting in brilliancy, partly due to over-printing and the pink paper. Always glad to help you.

Landor.—J. Dubouloz, 9, Boulevard Poisonnière, Paris.

C. W. Townsend.—A series of articles on "Elementary Chemistry," by C. H. Bothamley, ran through vols. 12 and 13. Would not these help you?

Trix.—(1) The index will, we hope, be issued this week or next, and the "Holidays with Camera" next week. (2) Last year's is the one; the new one will appear some time before June, but date not fixed. (3) Yes, slides and lantern at your disposal.

Dominæ.—No; Bulmer was a very shady dealer, who was shown up in our columns. Probably the lens you have is an inferior French lens with his name engraved on it.

G. W. S.—Why not try the application of a little benzine? If this won't do it, hydrofluoric acid would, probably. Had you used ordinary yellow wax 24 gr., resin 12 gr, and benzine 1 oz., you would have had no difficulty. Spermaceti is not so suitable.

J. Borthwick Panting.—We regret that we cannot see the necessity of opening up the subject matter of your letter again, and therefore withhold your letter.

Wager.—In No. 409 the first instalment of article appeared. Henry Park, 5, Station Buildings, Acton Street, Kingsland, N., can supply. (2) Over-exposure is probably the fault, but you do not say what plates you have used, so we cannot help you much. (3) You can send your lens, accompanied by 7s. 6d., to the Meteorological Office, Victoria Street, Westminster, and it will be tested for you.

N. D. R. Cyclo.—(1) What baths are you using? Ordinary, combined, or sulphocyanide?

(2)

Bicarbonate of soda..	90 gr.
Chloride of gold	4 ,,
Water	6 oz.

(3) The objection to using a half-plate wide-angle lens on a whole-plate are that it may not cover well without inordinate stopping down. If you use a whole-plate wide-angle lens on a half-plate it would no longer include a wide-angle. (4) Try Houghton's Excelsior or Butcher's mounting paste. These are the only ones which are likely to answer your requirements.

A. H. Price.—Yes, amidol is a very energetic and good developer, and can be used for the plates named.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for **Fourpence.** Every additional **three** words, **one penny.** The name and address of the sender **must be paid for.** (A single figure, or group of figures undivided by letter, space, stop, or words, counts as **one** word; compound words count as **two** words.)*

DEPOSITS.—*The money for goods forwarded on approval may be deposited with the Publishers of the* Amateur Photographer, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

PAYMENTS *should be made in Postal Orders or **Postage Stamps.***

ADDRESS.—*All advertisements (which can be received up to **Tuesday** mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* Amateur Photographer, *1, Creed Lane, London, E.C."*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge 1s.*

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to **Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

Bicycles, Tricycles, etc.—Cushion-tyred Safety, ball bearings all over, £4, or exchange for half-plate outfit, or whole-plate and give a little cash.—Northwood, Chemist, Buckhurst Hill.

Cameras, etc.—Whole-plate camera, brass-bound, measures when closed $12\frac{1}{2}$ by 8 by $2\frac{3}{4}$, suitable for lady or outdoor work, brand new, cost £7 10s., will take £3.—Lancet, 1, Hungerford Villas, Long Ditton, Surrey.

15 by 12 double extension camera, and double back, all movements, new, bargain, £6 6s.—17, Sedan Street, Walworth.

Cameras, Lenses, etc.—Key camera, lens, view finder, six double backs, in perfect condition, price £5 10s.—H. F., Camera Club, Charing Cross Road, London.

4 in. compound condenser and portrait objective, 18s. the pair; half-plate M. I. P. camera, extra fittings, 12s. 6d.; pair field glasses, cost 45s., price 17s. 6d.—M. Newhouse, 90, Victoria Terrace, Lancaster.

Hand-Cameras, etc.—Fallowfield's Facile hand-camera, splendid lens, as new, price 60s.—M., 19, Sherborne Road, Yeovil.

Lancaster's Rover hand-camera, quarter-plate, perfect condition, lowest cash price 38s. 6d.—Bain, Carclew Street, Truro.

Lenses, etc.—Half-plate rapid rectilinear, Waterhouse stops, new, 13s.; whole-plate rapid rectilinear, iris stops, new, 30s.—Miss Summers, Hillesley, Gloucestershire.

Optimus 6 by 5 R.R. lens, new, 35s.; "Photographs of Year," unsoiled, 5s.; Tylar's double metal dark slides, three half-plate, 7s.; six quarter-plate, 7s.; quarter-plate Instantograph lens, 10s.—W. G. Perks, Clevelands, Walthamstow.

Sets.—Lancaster's quarter 1892 Instantograph set, camera, lens, shutter, double back, stand, and case, in perfect condition, 35s.; deposit.—H. Rew, 49, Atlantic Avenue, Belfast.

Half-plate long-extension camera, seven double dark slides, stand, and case, cost £12, price £6; on approval.—No. 364, office of this paper, 1, Creed Lane, E.C.

Quarter-plate Instantograph camera, with lens, four double backs, tripod, and turntable, canvas case, sundries, etc.—W. Furneaux, 103, Calabria Road, Highbury, N.

Whole camera, stand, three slides, carriers, cases, etc., 20 in. focus, R.R. lens, £6 cash, no cards.—Hickes, Hairdresser, Dartmouth.

Lancaster's Le Merveilleux set, new, everything needed to work, complete, worth 30s. Offers?—Mayes, Alston Villas, Richmond Road, West Wimbledon.

Sundries.—The AMATEUR PHOTOGRAPHER, vols. 14, 15, 16, clean, unbound, 4s.—S. S. Haw, 8, Greenheys Road, Liverpool.

Four bound vols. AMATEUR PHOTOGRAPHER, with extras, 15s.—Edward Mason, Askrigg, R.S.O.

Trays.—Four unused wood trays with plate glass bottoms, for prints 23 by 17, bargain, 16s., carriage paid; four similar for prints $15\frac{1}{2}$ by $12\frac{1}{2}$, 10s., carriage paid.—Norman Douglas, c/o Hood, 229, Argyle Street, Glasgow.

WANTED.

Backgrounds.—Wanted, two backgrounds, exteriors; send photo and particulars.—Key, George Street, Grantham.

Cameras, etc.—Wanted half camera and double back; deposit.—H. Rew, 49, Atlantic Avenue, Belfast.

Wanted, camera; exchange india-rubber stamp-making machine.—Richard Huntley, jun., Hull.

Wanted, half-plate camera, etc., by good maker, must be in good condition. Particulars to 46, Newland Street, West Lincoln.

Lenses, etc.—Wanted, rectilinear lens for Lancaster's quarter-plate Instanto, Taylor, Beck, or Wray's preferred.—Gladstone, Graham's Studio, Springburn, Glasgow.

Accurately matched pair wide-angle rectilinears, from $3\frac{1}{4}$ to $3\frac{3}{4}$ in. equivalent focus, also pair of single or rapid rectilinears, from $4\frac{1}{2}$ to 6 in. equivalent focus.—Stereo, 3, Walpole Street, Wolverhampton.

Swift's detective Paragon lens. Lancaster's special Instantograph camera, quarter-plate.—No. 363, office of this paper, 1, Creed Lane, E.C.

Optimus wide-angle half-plate, cheap, good condition.—Chinery, Cardigan Street, Ipswich.

Wanted, $4\frac{1}{4}$ R.R. lens by Beck, or Frena camera if cheap.—W. G. Perks, Clevelands, Walthamstow.

Stereoscopic Apparatus.—Wanted, Chadwick's double-quarter stereo camera, with lenses, six or more single slides; must be in perfect condition and on approval. State lowest price to W. D., 2, Victoria Road, Kensington, W.

Bargains in Hand Cameras.—"C" Daylight Kodak, rectilinear lens, time and instantaneous shutter, two finders, focussing, covered leather, carries forty-eight 5 by 4 films, as new, 75s.; Adams' Otto hand-camera, good lens, two finders, shutter, etc., carries twelve quarter-plates, covered leather, as new, 35s.; "A" Daylight Kodak, as new, good lens, shutter, finder, covered leather, as new, 25s.; Fallowfield's special Facile camera, morocco leather fitted special rectilinear lens, iris stops, two finders, instantaneous shutter, etc., carries 12 $\frac{1}{4}$-plates, take £5 10s., cost £8 10s., quite new; Griffith hand-camera, carries 6 $\frac{1}{4}$-plates, covered leather cloth, good lens, shutter, finder, etc., quite new, 15s.; Lancaster's Omnigraph, $\frac{1}{4}$-plate, finest condition, all improvements, 15s.; Houghton's Automatic Hand-camera, guaranteed as new rapid rectilinear, rotating stops, Thornton-Pickard shutter, carries twelve quarter-plates, fine camera, £4 10s. No. 5 folding Kodak, carries fifty-four films, rapid rectilinear lens and shutter, extending leather bellows, covered morocco, finder, etc, £9 9s., cost £13 13s.; Optimus Minimus hand-camera, quarter-plate, for twelve plates, Optimus Euryscope lens, roller blind shutter, two finders, bag changing, covered morocco, finest condition, £4 17s 6d.; Talmer hand-camera, carries twelve quarter-plates, fine portrait or view lens, shutter, finder, bag changing, etc., finest condition, 47s. 6d.; Key hand-camera, by Platinotype Company, rapid rectilinear lens, shutter and six slides, size quarter-plate, finest order, £4 12s. 6d.; Optimus Magazine, very finest order, Optimus rapid rectilinear lens, carries twelve quarter-plates, roller blind, shutter, focussing adjustment, £5 5s; Kodak No. 1, best R.R. lens, carries 100 films, best order, in leather case, 40s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Dallmeyer's 2 B patent portrait lens, finest condition, Waterhouse stops, rack focussing, take £6 17s. 6d., cost £13 13s.; Optimus portable symmetrical, size 9 by 7, rotating stops, covers well, works *f*/11, as new, 65s.; 9 by 7 Optimus rapid Euryscope lens, Waterhouse stops, moveable hood, grand definition, as new, £5 5s.; whole-plate portrait lens, Waterhouse stops, rack focussing, covers well, as new, 65s.; 8 by 5 Ross' rapid symmetrical lens, iris stops, grand definition, quite new, £4 7s. 6d.; 7 by 5 Panorthoscopic lenses by Laverne (Clement and Gilmer), Waterhouse stops, loose hood, latest pattern, as new, 50s.; Shew's No. 2 rapid wide-angle lens, rotating stops, as new, warranted, £2 7s. 6d.; half-plate Lancaster's rectigraph lens, thorough order, covers well, Waterhouse stops, take 32s. 6d.; half-plate Lancaster Instantograph lenses, iris stops, and instantaneous shutter, 15s.; Swift's 6 by 5 rapid Paragon rectilinear lens, Waterhouse stops, fine definition, movable hood, etc., finest condition, 50s.; Ross No. 2 c. de v., rack focussing, Waterhouse stops, very best order, take £4 4s.; Optimus quarter-plate portrait lens, rack focussing, Waterhouse stops, quite new, 21s.; 5 by 4 Optimus rapid rectilinear, by Perken, Son, and Rayment, Waterhouse stops, 27s. 6d.; Swift 5 by 4 wide-angle rectilinear, 5 in. focus, rotating stops, 32s. 6d.; $\frac{1}{4}$-plate hand-camera lens, by Laverne, rapid rectilinear, adjustable focus, 15s., quite new. All above lenses are warranted as described.—On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Every description of apparatus bought, sold, or taken in exchange.

Bargains in Cameras and Sets.—10 by 8 camera fitted all latest improvements, back and front extension, for wide-angle pictures, leather bellows, reversing back, rising and falling front, two double slides, grand condition, take £6 10s. lot; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three fold stand and case, lot as new, £11 5s.; whole-plate Spanish mahogany camera, by Mason, Glasgow, leather bellows, single extension, wide angle movement, rising, falling and cross fronts, reversing, three double slides, changing box for twelve plates, fine Euryscope lens, Waterhouse stops, Newman shutter and folding stand, grand set, £7 17s. 6d.; half-plate camera by Parker, Holborn; "Companion" finest Spanish mahogany, wide angle movement, all latest improvements, leather bellows, etc., three double book slides, Optimus rapid rectilinear lens, Waterhouse stops, Thornton-Pickard shutter, four-fold ash tripod, the set, including stands, fits in solid leather case, set as new, £8 5s., worth double; half-plate camera by Houghton, Holborn, double extension, wide-angle movement, rising and falling front, leather bellows, etc., rapid rectilinear lens, iris stops, three double slides, three-fold stand and case, as new, £5 10s., warranted; Lancaster's half-plate 1892 instanto. camera, all latest improvements, double extension, leather bellows, etc., double slide, quarter carrier, very fine rapid rectilinear lens, and folding stand, set complete, 75s.; Optimus $\frac{1}{4}$-plate portable A. R. camera, all latest improvements, three double book slides, Optimus rapid rectilinear lens, Waterhouse stops, shutter, sliding tripod, and waterproof stiff cameras, case quite new, £4 17s. 6d.; quarter-plate Le Merveilleux set, by Lancaster, complete, 15s.; quarter-plate extending camera, best order, good lens, two double book-form slides, and folding stand, 17s. 6d. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Magic Lanterns and Slides.—Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; epscially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

Regulators and Gauges.—Great reduction, in price. Either can now be had of Walter Tyler for 14s. each. The largest stock of gas cylinders in England. Best seamless steel, tested and valved, and all sizes at very low prices.

Slides from Negatives and Pictures.—Walter Tyler manufactures and colours slides on the premises, thus ensuring speedy delivery, and prices are most moderate.—Walter Tyler, 48, Waterloo Road, London.

Biunial Lanterns.—If you are in want of a really good biunial lantern, perfect in every respect, call and see Walter Tyler's entire brass fronted, mahogany-bodied, lined with Russian iron, and fitted with new best quality lenses, and sold at a most moderate price. The top lantern will take a 4-wick lamp. These are great bargains.—Walter Tyler, 48, Waterloo Road, London.

Hire Department is now perfect. Largest and best collection of slides in the world; over 200,000 always in stock. Temperance, travels, Scripture, educational, comic, tales, etc. Cheaper than any other house, no extra charge for coloured slides or effects. Special terms for large quantities.—Walter Tyler, 48, Waterloo Road, London

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Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps. Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

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The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Sciences Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

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Special Triple; mahogany, entire solid brass fronts, £12 12s.; a really good lantern, unequalled.

Elegant Mahogany Biunial; brass fronts, £7 10s.; blow-through safety jets, 6s. 6d. and 8s. 6d.; mixed gas jet, 12s. 6d.; Malden double dissolving tap, 12s. 6d.; regulators, 12s. 6d.; gauges, 12s. 6d.; grand effects; particulars free, before purchasing. Send for Mr. Hughes's grandly illustrated catalogue, over 150 finely cut original wood engravings, price 6d., postage 3d.; separate list of 60,000 slides, price 6d., postage 3d.; pamphlets free; second-hand lists free of bargains.—W. C. HUGHES, Brewster House, Mortimer Road, Kingsland, London, N. Fifty slides, all nicely coloured, on loan for 3s., in special despatch boxes.

ADVERTISER, about to travel, wishes to exchange for eight months complete whole plate set (Euryscope and W.A. lenses, dishes, etc) for a thoroughly good quarter-plate ditto, fitted roll holder preferred.—J. H. R., Ecclesbourne, Lee, S.E.

The Amateur Photographer

Telephone No. 1645

Telegraphic Address: VINEY, LONDON

Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 434. Vol XVII.] FRIDAY, JANUARY 27, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 *till* 5 *o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from* 10 *till* 1 *o'clock.*

Our Views.—"Holidays with the Camera" Awards—The Quality of the Work—The Artist—What to Work for—Withholding Prints—Flukes—Days Lengthening—Spring Crops—A Wide Custom—Adoption of Particular Styles—An Eye on the Gallery—Technique—E. London Dinner—Ill Weeds and Good Plants—Pyro and Soda—Warm your Developers—The Decline of Professional Photography—Photographing London's Old Landmarks—Photographs for an M.P.—Lantern Lectures—Photographing the Vocal Organs—ForfarExhibition—Frauds—Brunker,of Southsea—Deposit System—Charity Lantern.

Letters.—Reduced Fares for Photographers (J. C)—Cheap Substitute for Sheaths and a Changing Box (R. W. J.)—Toning Gelatino-chloride Paper (Roberts)—An Anachronism (Huggins)—Dealers *v.* Prize Competitions (Arthur Seat, Enthousiaste)—W. Kirby Phot. Soc. (Jones and Tunstall).

A B C of the Lantern.

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Apparatus.—Blackfriars Walking-stick Tripod—Fallowfield's Lamp—Unique Hand-camera.

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EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of* ***Three Words for One Penny****) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Lantern-Slide Competition, No. 44.—Latest day, February 11th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, February 24th, 1893.)

The judges, who were Messrs. Bernard Alfieri, Horsley Hinton, and Hodges, have made the following awards in the "Holidays with the Camera" competition:—

Gold Medal	Alex. Keighley
Silver „	E. R. Ashton
Bronze „	T. Perkins
„ „	Geo. Lamley
Certificate	E. B. Wain
„	H. G. H. Spencer

We placed ourselves unreservedly in the judges' hands, giving them the disposal of two gold, two silver, and two bronze medals, but they have stated that they did not feel disposed to make further awards.

◆

We have carefully gone through the prints sent in, and whilst there are decidedly more entries than in previous years, we do not feel disposed to regret the judges' decision, the work not being of such high standard as we hoped.

◆

Perhaps in no respect does the Artist reveal himself so much as in his capacity for self-abnegation, in suppressing or even destroying those productions which, although in some one respect or in some limited manner satisfactory and pleasing to himself, are not wholly good and worthy of exhibition.

◆

In some respects it is very true that the Artist should work for himself alone, caring nothing what his critics may say. Very true, and ever to be borne in mind; yet there is danger in putting forward as an artistic work for the acceptance of all those productions, be they paintings, or photographs, or what else may be accepted as art work, which merely portray or express in some respect the particular fancy or foible of the author, but in other ways are faulty and imperfect.

◆

This is exemplified oftentimes in looking through a competition set of photographs. In one instance after another we find that if only the contributor had exercised more strength of mind and withheld one half his contributions, how much higher his average of merit might have been. When regulations state "not less than six or more than twelve," why will nearly every one enter the larger number, often including in the full dozen sufficient to condemn the remainder?

◆

A good six—nay, were it not for the danger of those happy chances called "flukes" being recipients of unmerited distinctions, we would say a very good one—were far better than a crowd, amongst which not more than one or two can rear its head above mediocrity. But it's a greedy age, and quantity often pleases where quality passes unnoticed, and so aspirants for fame may be pardoned when pinning their hopes to the success of a dozen or a score when probably a selected six would have done them more credit.

* * *

Already at the close of the first month of the year daylight is perceptibly lengthening, and the quality of the light is higher than a few weeks ago. On a fairly clear day just now it is possible to get some printing done, and it is, perhaps, all the better done for being slow. Who has not recognised the superior results, in nine cases out of ten, of very *slow* printing?

* * *

We refer to this matter bearing in mind that many readers will be anxious about getting sufficient work done for forthcoming exhibitions, for, as prophesied long ago, "the spring crop" of photographic exhibitions will probably be quite equal to the autumn harvest of similar events.

* * *

Would that in this matter of preparing work for the far too numerous shows exhibitors could evince a little more independence and spirit! It has become widely customary to suppress or cover over the names of exhibitors until after judges have made their awards. This is no doubt a good plan, but surely it is a little one-sided.

* * *

It implies that the judges may be influenced in their discriminating good work from bad by knowing the author's name. No doubt there is something in this (though who that has frequented any considerable number of exhibitions can fail to identify many a man's work by the style and treatment?), but is there not possibly danger of mischief arising from the previous knowledge of who the judges are to be? Is there not great danger of exhibitors, who are naturally anxious to secure recognition, attempting, even in violation of the dictates of their own instincts, such manners, sizes, styles, colours, etc., as are known to be adopted in their own work by those who will have the judging and disposing of the awards.

* * *

Herein is a text sufficient for a lengthy article, but it is a great matter, and although we may be able to give a column or two to it at another date, it will bear repetition and we need not hesitate to refer to it here. Thus a modern writer has said, "The instant we begin to think about success and the effect of our work—to play with one eye on the gallery—we lose power, and touch, and everything else." "Instead of being quiet and giving every power you possess to your work, you are fretting over something which you can neither help nor hinder by a minute." There is a deal more truth in that for earnest workers than may appear, and well worth thinking over.

* * *

The scheme for the formation of a central cosmopolitan photographic club appears to progress favourably. The promoters are evidently resolved not to launch the thing upon an unwilling public, and are therefore carefully testing the full amount of support the thing is likely to meet with before actually committing themselves to public announcements. Thus we feel hardly at liberty to give our readers any definite particulars as yet through our columns, but to such as feel really interested we shall be happy to put them in the way of knowledge of this particular matter, if they care to apply.

* * *

What do we mean by "*technique*" as applied to photography? asks one. We should hardly have thought the question necessary. Perhaps we have not rightly understood the querist. You may put your camera in Creed Lane here and photograph our Editorial door-plate, or expose a plate upon the water-butt in your back yard, and get a photograph perfect in every *technical quality*, otherwise perfect in "*technique*." Whether, in photographing a landscape or portrait, any "technique" is good which does not successfully convey an artistic idea may be open to discussion, though even in such branches of work there would seem to be in ever such an inartistic production certain qualities which as far as the exercise of manipulative skill is concerned, and the use of lens and chemical reagents, may be recommended as technically clever, and hence of skilful technique. Don't you think so?

* * *

The East London Photographic Society had a "rattling good evening" last week, when at their annual dinner the medals awarded at the exhibition held a couple of months ago were distributed by Mr. Horsley Hinton, who made some appropriate remarks upon the value of medals and the conditions under which their possession should be sought. The society appears to include amongst its roll of members not a few who can ably lend assistance to a musical programme, notably the President and Hon. Secretary, Messrs. E. A. Pasco and J. M. Wilkinson, a pleasing tenor and a fine bass respectively. So that after dinner a really very good list of songs and instrumental pieces were got through.

* * *

"Ill weeds grow apace," and so do good plants when well cared for; and so the Amateur Photographer is steadily going ahead, and the Editor is enlisting fresh help. Younger contemporaries—aye, and older ones too—publish letters of congratulation and praise which it is our custom merely to acknowledge, and file away; still, the frequent letters of kind approval and appreciation are very pleasant and encouraging.

* * *

Anent the recent popularity of "pyro-soda developers"—that is the use of sodium carbonate as the alkali in place of ammonia —"J. C.," in an article in "Dry Plates," comments on the respective merits of ammonia and sodium salts in development, with the ending that he recommends his readers to "*stick to ammonia.*" He says, quoting Mr. Payne Jennings, whom he regards as an authority in practical work, "No more soda for me; it is very good for indigestion, but not for development." Thus doctors differ, and if photographers do not die of confusion it will not be for want of conflicting advice.

* * *

We note that at the foot of each page of the publication referred to, in bold type appears the subscription, "Warm your developer to 65 deg. Fahr." Evidently Messrs. Cadett and Neall attribute great importance to the developing solutions being kept at an equal and not too low a temperature. *Verbum sap.*

* * *

In the discussion which a contemporary is just now devoting some of its space to, on the cause and remedy of the decline of the professional photographer's business, one correspondent attributes the decline "to the introduction of the gelatine dry plate." Strange that the thing which has been so unanimously regarded as the great boon to photographers generally should now be pointed out as the cause of a great trade evil.

* * *

The *City Press* of last week strikes, if not a very original note, at least an eminently important one, and that is the great desirability of having London's old landmarks photographed ere the tide of modern palatial buildings sweeps these dear old relics of a past age from sight. The writer says:—"We may, perhaps, be allowed to draw the attention of the responsible authorities of our free libraries to the great importance of this species of work. A collection of such photographs would in time constitute a mine of inestimable topographical value to future historians and students of the fascinating associations and memories which cling around the old and smoke-stained walls of London."

HERE is a work in which many an amateur could lend a voluntary hand—at least, until such time as "the authorities" may awaken to the necessity of appointing some one for the work.

IN the North-East Parliamentary division of Cornwall the constituents have presented their Member, Mr. Owen, M.P., with a handsomely appointed album of photographs, all views of the locality or immediate surroundings—a graceful and appropriate presentation. The photographs are the work of Messrs. Hayman and Son, photographers, of Launceston, and reflect considerable credit on their producers.

MR. T. C. HEPWORTH has been lecturing with the lantern in Dundee, and was well received. Whether practically connected with photography or not, everywhere one meets with announcements of lectures with "oxy-hydogen views," and in a sensibly-written article on this subject a Liverpool contemporary points out that whilst there is undoubted good in lantern-illustrated lectures, yet there is danger that it is a pure love of "pictures" that attracts and interests, and the lecture, even supposing it to possess merit, is quite lost sight of and is unheeded.

UNDER these circumstances, certainly the chief purpose of an instructive lecture is lost, and it behoves every lecturer to nicely decide how much of his allotted time shall be devoted to speaking, and how much to merely pointing to the views as they appear on the screen. The contemporary referred to says:—"Let the amateur photographer show his slides by all means; they are often good, and their inspection passes a leisure hour pleasantly; but his exhibition of slides should be described as such, and his claim to the title of lecturer disputed." It would almost appear as though the writer were "getting at" some one in Liverpool—a city so strong in all things photographic that some one's ears cannot but tingle.

DR. MUSCHOLD, of Berlin, has, it appears, succeeded in photographing the vocal organs *in situ*, by means of a flash actuated by electric current. Really, if the lens penetrate much farther, the source and degree of our individual and pet liver complaints will be subjected to photographic investigation, and those names which in foolish moments we have declared to be "imprinted on our hearts" will be reproduced by photography set in operation at the moment of an unguarded yawn!

WE are glad to learn that Mr. Anckorn's scheme for holding an exhibition in the far-off Forfar is meeting with good support, and seems likely to be in every way a successful affair. It will be held about the second week in May.

ON the 17th inst. at the Llandudno Police Court, two respectably dressed young men were charged with defrauding a resident of that place by means of an advertisement in the *British Journal of Photography*. Both prisoners were committed for trial, bail being fixed at £300.

ONE of these "respectably dressed young men" was Vincent Johnson, alias Brunker, of 12, Stanley Street, Southsea, about whom we received a short time since numerous complaints. Should any of our readers have been victims of this man we hope they will communicate with the police at once.

WE have before called attention to the necessity of insisting upon the deposit system in connection with the Sale and Exchange, and we hope all our readers will invariably adopt it.

SOME years back Messrs. Perken, Son, and Rayment placed at the disposal of the Editor of the AMATEUR PHOTOGRAPHER a handsome biunial lantern, which might be loaned to any of our readers for charitable purposes. In many cases it was found that it could not be used, on account of the necessity of using gas, as it was not fitted for oil lamps. Messrs. Perken, Son, and Rayment have now, however, given us two lanterns in place of the biunial, which may be used for oil or limelight.

We shall be glad to hear from any of our readers who may wish to borrow these lanterns. The only conditions for the loan of the same are (1) that they shall be used for charitable purposes, (2) that they shall not be loaned to photographic societies. If those desiring to borrow one of these lanterns will, at the time of application, inform us whether they intend working with the lime or oil lamp, we will send them out properly fitted up. There are no booking fees, and the borrower will merely have to pay carriage both ways.

We are quite sure all our readers will appreciate the kindness of Messrs. Perken, Son, and Rayment, and these handsome lanterns, with a set of our lantern slides, which we also loan free for charitable purposes, will, we hope, enliven many dull nights during the season.

THIS should be "Our Lantern Screen" number, but in consequence of the issuing of the Index this week, we have been compelled to postpone it till next.

Letters to the Editor.

REDUCED FARES FOR PHOTOGRAPHERS.

SIR,—I believe endeavours have been made at various times, but without success, to induce railway companies to grant reduced fares to amateur photographers carrying their cameras. I presume one reason of this want of success would arise from the fact that any material reduction of fares would convert all travellers into photographers. Although this particular scheme seems impossible of accomplishment, I venture to suggest another having for its aim the cheapening of railway travelling, and although not designed exclusively for the benefit of photographers, yet, as they would derive great benefit from it, I will be glad if you publish it, in the hope that photographic societies may have influence enough to get it properly considered, and, if possible, adopted by the railway companies.

What I propose is, that tickets should be issued, to be called rebate or coupon tickets, as under:—

REBATE TICKET. EDINBURGH AND STERLING. Signature of Passenger.	STERLING TO EDINBURGH.	EDINBURGH TO STERLING.

The ticket would be somewhat thinner than usual, and folded in the middle, making it the same size as an ordinary ticket, and so suiting the ordinary ticket cases. On the rebate half the following regulation would be printed, to prevent fraudulent transfer:—"This ticket must be signed by the passenger, in ink, *after* making the outward journey, and *before* beginning the return journey." A scale of the rebate allowed would also be printed on the rebate coupon, giving the percentage to be allowed on the number of journeys made, from, say, five up to thirty journeys. It is not proposed that money should be returned to passengers, but that on presentation of the rebate tickets to the company before the close of a season, bonus tickets to any place or places desired, available at any time during the particular year, would be granted, to a gross value corresponding to the rebate earned on the number and value of the journeys made. For instance, a passenger has made fifteen journeys during a season, and has paid £2 in fares; the rebate on this number of journeys is fixed at, say, 100 per cent., and he would receive bonus tickets to this value. The result of this arrangement is, that, in the circumstances named, the passenger would travel at half the ordinary rate; certainly not an inordinate concession.

I feel sure that such an arrangement as this would be a great advantage both to the public and to the railway companies; to the companies because it would bring greater revenue, and to the public because they could travel at a cheaper rate. It must not be supposed that such an arrangement could not be advantageous to *both* parties. The actual cost of conveying a passenger is almost infinitesimal. Perhaps a pennyworth of coal would be sufficient for sixty miles, yet in ordinary circumstances no railway will convey one that distance for less than sixty pence, it being taken for granted that the number of journeys made by people is pretty much a fixed number, and that any reduction of fare would simply lead to loss of revenue, and that, of course, the companies cannot very well afford. Still, it is clear that if people could be made to spend a single shilling more than they would otherwise do, almost the whole of that shilling would be gain to the companies. Most people now-a-days, especially in summer, wish to go out into the country as much as possible, and there is in many cases plenty of money to devote to the purpose, if the travelling were only made worth the money. By this scheme the temptation to travel is always an increasing one, every successive journey making *all* the preceding journeys cheaper, but this cheapening can never take place to an extent that is not foreseen and provided for by the graduated scale.

I hope the scheme may commend itself to those interested in such matters, and, if possible, be brought into operation.—Yours, etc.,

J. C.

* * * *

A CHEAP SUBSTITUTE FOR SHEATHS, AND A CHANGING BOX.

SIR,—One of my chief difficulties in completing a home-made hand-camera has been with the plate-changing and sheath arrangement. These, I suppose, are the usual troubles. I did not want a mysterious contrivance all out of sight, and impossible to put right out of doors, if anything happened to go wrong; nor did I desire to change twelve plates in five seconds, or something of that sort. My theory, evolved after some dozens of failures, was very simple—that I should be able to actually touch the plate, if necessary, at any part of its career, in the changing box, in its position for exposure, and after exposure.

Having made the things myself, I formed a bad opinion of levers, lifters, and all sorts of wonderful "works" I see so much vaunted. This is the outcome of it all: A light-tight pouch, like a large forefinger, is made in the bottom of the camera under the exposure chamber. A bag, covering the top of the latter and reaching to the back of the box, is at the top, but not interfering with a door at the back. Thus I can focus, if necessary. The pouch already mentioned is large enough to reach under the very simple changing-box. This has a lid, and under it an opening back and front large enough for a plate to come through, but not for a dummy—two pieces of wood, the size of a plate, kept apart by a spring. Two bars cross the bottom of the box, to prevent the plates from dropping out. On each side a half circle is cut away. The bottom is another light-tight pouch. Thus a plate is pushed up, grasped, dropped partly into the exposure chamber, and pushed home. One side of the box keeps it in register, or a removable sheet or cardboard may be left in. The plate can always be felt. This I take to be an advantage. This gives a new use for old plate boxes, especially if of the substantial kind, like Thomas's, the Paget, etc. They can be converted in half an hour into changing boxes, and can be carried in the pocket.

Now for the sheath. Every one of these contrivances I have yet seen quietly refuses to deal *properly* with more than one thickness of plate, and indifferently, or not at all with those of any other thickness. Then again most of them bulge sufficiently to scratch the film of the plate behind it, and so often do more harm than if none were used. Here is the remedy. Get a yard or two of thin round black elastic at the draper's. For quarter-plates, if to drop in the long way of plate, cut into 6½ inch lengths; tie the ends together, and slip one of these rings, nearly at the edge, on either side of the plate. The result is a smooth protection to the plate, which effectually prevents scratches, and can be applied as quickly as a plate can be put into a sheath, and has the further recommendation that you do not have to break your negative to get it out of the sheath if it happens to be extra thick.—Yours, etc., R. W. J.

* * * *

TONING GELATINO-CHLORIDE PAPER.

SIR,—I find that in toning Solio prints in Mason's bath (which, by the bye, I like very much, and find easy to manage) there is a considerable deposit or precipitation after toning about a dozen prints, and there is then great risk of yellow stains on the prints subsequently toned in the same bath. Can you recommend any remedy which will prevent to some extent the deposit, and would it not be much better to wash the prints previous to placing in toning bath? This would, of course, greatly lessen the evil, but Mr. Mason recommends immersing the prints in toning bath without previous washing. Perhaps Mr. Mason would explain his reasons for not washing before toning? Of course, it saves time and trouble and lessens the time the prints are in water, which is said to be a point to keep in mind when using gelatino-chloride papers; but are these advantages sufficient to warrant one doing away with prior washing? I should like to learn what has been the experience of some of your readers who have used Mason's bath with Solio paper, and what quantity of chloride of sodium they have found best for this paper?

I have used 100 gr. chloride of sodium (as suggested by Mr. Mason in one number of the AMATEUR PHOTOGRAPHER), 15 gr. sulphocyanide of ammonia, 2 gr. chloride of gold, to 10 oz. water, and found the bath to work well with the first twelve prints, but if more are toned it works much slower, and needs an addition of gold to prove quite satisfactory. It seems when mixed, even if not used at once, to rapidly change colour, and to deposit a yellow or rather deep orange sediment of a cloudy nature. I should like to know if it is best to use the bath immediately after mixing, or, if not, what length of time should elapse before it is ready for use, in order to obtain the best results?—I am, yours, etc., WM. ARTHUR ROBERTS.

* * * *

AN ANACHRONISM.

SIR,—Mr. W. de H. Birch has apparently overlooked a fundamental difference between photography and any other current graphic method, which makes the employment of the former an anachronism where any of the latter would be correct.

Every one knows that a painting is more or less the work of somebody's imagination, founded upon such data as its orginator judged fit to employ, and that it is limited neither by time, distance, nor strict fact.

But every one equally well knows that to photograph an event it must actually be happening in front of the lens at the moment the photographic exposure is made.

The occurrence and the exposure being of necessity absolutely contemporaneous, and photography being a product of this century, a supposed photographic representation of an event happening centuries ago is not only, in my opinion, an anachronism, but a particularly bad and obtrusive one.—I am, etc., J. W. HUGGINS.

* * * *

DEALERS *v.* PRIZE COMPETITIONS.

SIR,—Replying to your correspondent "Frank," I think prize competitions in photographic art should be open to all comers, as they are in the Royal Academy for painting, whether the competitors be amateurs, professionals, or dealers.

The object of competitions, I take it, is not to cheapen awards or to facilitate our friend "Frank" securing one with such apparatus as he possesses, but to encourage healthy emulation in the production of good pictures displaying artistic merit and technical ability. The prize should not come down to the amateur, but the amateur should work up to the prize against all odds. "Very good for an amateur," is not regarded as a complimentary remark. "A very fine picture, by Frank, an amateur," would be better.

"Frank" is mistaken, too, in supposing the dealer has any advantage over the amateur, for though the former may be puzzled as to which camera and which lens he will take, he is more likely to be puzzled which day he can run out to photograph, while the amateur in most cases is in steady practice of the art, and can choose his own time.

No, the *picture* should be judged, not the competitor, for nature will be fair and liberal to those who can pourtray her fitful moments, and she will be just in awarding the real prize, the good picture.

ARTHUR SEAT.

SIR,—I am afraid "Frank" has overlooked the fact that the photographer who uses the most costly apparatus is not necessarily the producer of the artistically best picture. The amateur with the swell camera and up-to-date lens cannot the more readily induce nature to yield to him her charms than can the man with the home-made or the "cheap set."

Photography, as I understand the term, means somewhat more than a mere worship of apparatus. The tyro has already sufficient difficulties to overcome, and the additional treat of having to watch over the polish of may be a twenty-guinea camera would not, to my mind, prove much of an incentive to good work.—Yours, etc.,

ENTHOUSIASTE.

* * * *

WEST KIRBY AND DISTRICT PHOTOGRAPHIC SOCIETY.

SIR,—It has been thought feasible to commence an amateur photographic society for West Kirby, Hoylake and district. A number of gentlemen have already given in their names, and we shall be glad to receive the names of others.—I am, yours, etc.,

J. MAURICE JONES (The Crescent, W. Kirby),
E. M. TUNSTALL (31, Eaton Road, W. Kirby).

W. WATSON & SONS, 313, High Holborn, London.

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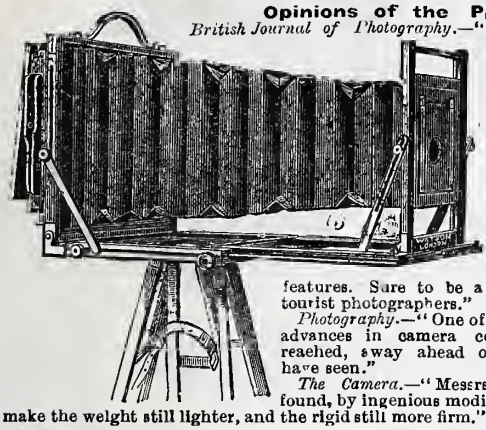

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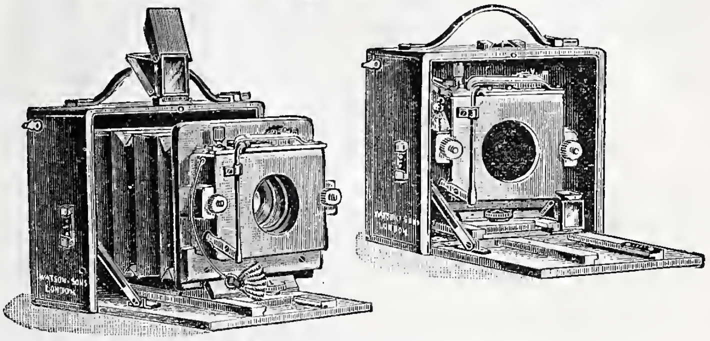

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	8 15 0	9 14 0	12 0 6

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	£ s. d.	£ s. d	£ s. d.
Camera & 1 Double Slide	2 5 0	2 12 0	3 10 0
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Exposure Shutter...	1 0 0	1 0 0	1 0 0
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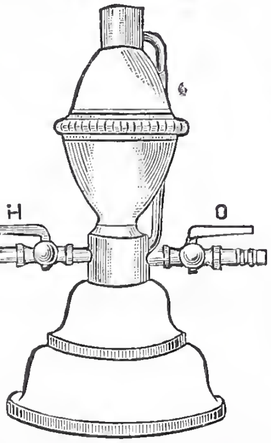

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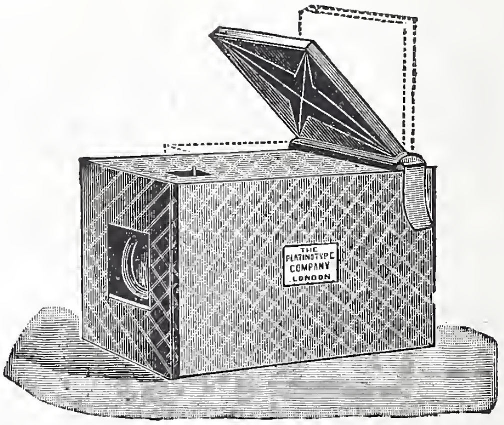

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Photography in a Flat Country.

PART II.

BY A. HORSLEY HINTON.

SUCH as know not that territory on the eastern seaboard known locally as the "Saltings," will find it difficult, nay, impossible, to understand it fully either from written description or illustration.

Many a league of wide waste contested at each tide by sea and land; at flood the greater part submerged, and the whereabouts of the great salt marsh only indicated by tracts of floating weed and grass undulating with the swell of the water, traversed here and there by smooth streams of water where the lesser channels lie. But at the ebb the scene is scarcely recognisable; where a few hours ago was a sheet of water and floating weed, a vast plateau extends as far as the eye can reach, the black peat-like soil is thickly clothed with rank grass and many strong plants that love the salt water and brackish air, yielding sponge-like to the tread and treacherous in soft places. Everywhere on the tufts of grass, now perhaps some mile or two from the fallen tide, myriads of empty carapaces and armoured limbs of dead crustaceans of smaller growth, and with them a thousand relics of the sea waves which bore them hither and then deserted them. On all hands where the "Saltings" approach the sea is a far extending shore of soft mud, acres of smoothest shining ooze growing more liquid as it meets the water, mingling at last with it without line of demarcation, so soft and yielding that the slightest weight falling thereon is engulfed and sinks in this pulp-like deposit.

Turning again to the firmer ground, it is impossible to travel more than a few yards because of an intricate maze of creeks deep cut, with high banks of mud reticulating the whole region with an inextricable labyrinth, branching and doubling, widening into deep pools, disappearing almost for a few feet where the "sea lavender" and "thrift" grow more profusely. Only here and there is there a way across, a path through all this maze of peat and slime and water, and these are known to the eel-picker, whose work necessitates his crossing from one mud bank to another, but even he must choose his time and be wary of the flowing tide. Strange it is and picturesque, when the waters are low and the tracts of mud exposed, to watch the eel-picker with wide boards strapped to the feet like a Laplander's snow shoes to prevent his sinking in the ooze, stealthily walking on what from a distance looks like smooth water, and every now and again plunging his long barbed staff into the mud where by the appearance of a "blow-hole" the sportsman knows an eel lurks.

In the sketch on page 60 we are looking landwards across a narrow strip of salting channelled by branching creeks, and overgrown in the foreground by sturdy growth of grass, rush, and weed. In little patches where the land has stubbornly maintained its character, and has gathered a little vegetation of a lowly kind, we shall meet with a luxuriant crop of such plants as rag-wort, willow-herb, thistle, and the like, and how gorgeous they seem when seen in flowering time amidst this dreary wilderness, how useful in picture work! A little stronghold which has successfully withstood the incursions of restless waters, where rabbits disport themselves and occasionally the foot-tread starts the wary hare.

The grass-grown salt-marsh around is anything but of uniform colour; the grasses are brightest green, brown, and grey, almost white in the sunlight, according to varying conditions and seasons; moreover, the grey-green foliage of the sea-lavender (*Statice,* two or three species) often forms a dense border along the edges of the creeks, making quite deep-black shadows under the light leaves, and in the summer's prime a shimmering haze of purplish hue spreads out when the little spikes of scentless blossom shoot upwards, and gladden the lives of countless winged insects. A notable feature in late summer is the sea starwort (*Aster tripolium*), with handsome heads of flowers, often rising three feet high, and when growing in close clusters forming quite a bright patch in the landscape.

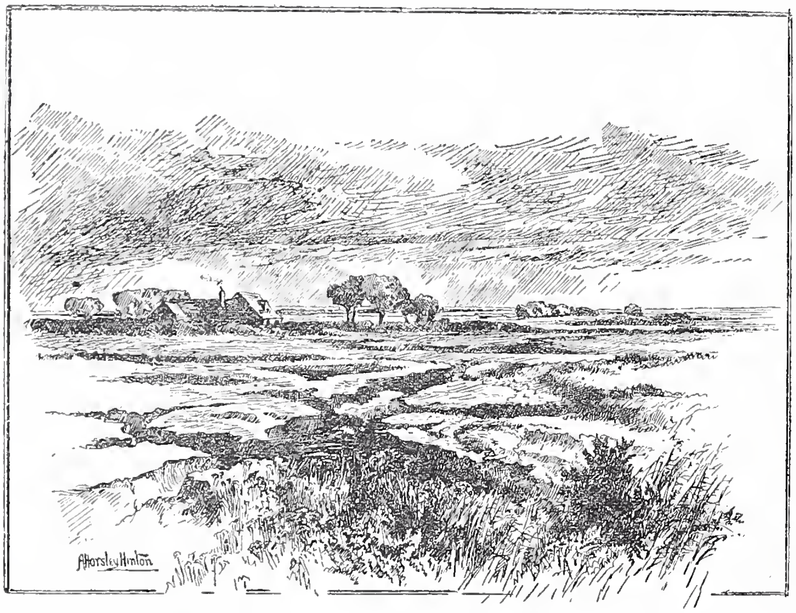
The Rev. S. Baring-Gould noticed the floral beauties of the salt-marsh, as he who lives amongst it must do; he says:—"In summer the thrift mantles the marshes with shot satin, passing through all gradations of tint from maiden's blush to lily white. Thereafter a purple glow steals over the waste as the sea lavender bursts into flower, and simultaneously every creek and pool is royally fringed with sea-aster. A little later the grass-wort, that shot up green and transparent as emerald grass in the early spring, turns to every tinge of carmine."

Close to high-water mark, and guarding like a rampart the mainland, is a huge earth-work, a great sea wall; firmly made and unbroken, it follows each indentation of the land, and presents a bold front to the battery of the sea. Its summit slightly flattened, forms a convenient space for walking, and we have aforetime suggested to the enthusiastic pedestrian the idea of a journey round the Eastern coast, keeping to the sea-wall throughout all its vagarious windings.

The sea-wall is usually of considerable eminence, considerable, at least, for so flat a country, and forms a vantage ground from which the eye can secure a comprehensive view of the surrounding country. Clothed on either of its steep slopes with grasses and flowering plants and sometimes stunted thorn bushes and gorse, the wall itself, especially when it winds more abruptly, may be useful in our picture, occasionally a straw-thatched barn or a rough hurdle fence crossing it breaks the monotony of its form.

On the landward side of the grass-grown wall a wide ditch runs—deep, stagnant, and rush-grown. Sometimes, too, a second wall some little distance inland, and enclosing with the first a space of moist pasturage, almost a swamp in rainy weather, and there flourish tall reeds and masses of the tall-growing plume-thistle (*Cnicus palustris*) often ten feet in height; it vies in growth with the neighbouring reeds, pale lilac when in blossom, its tufted crown changes in seed-time to a cloud of silvery grey, which a puff of the summer breeze lifts and carries away like a little cloud of mist, and the nodding plumes of the reeds, purple, brown, and grey, bend with the pressure of the breeze, and as the evening light grows feeble, they seem to point like half-closed spectral hands pointing which way the wind went as it passed over their heads from the sea and rustled their long stems. If memory serves us, M. Gustave Doré, in an illustration of Hood's "Dream of Eugene Aram," depicts the reed heads, each one a hand pointing with the forefinger to the place where the corpse lay hidden.

In this country which we have been attempting in some way to describe the lover of nature, may spend many days in delightful wanderings, and the photographer who loves effective foregrounds may find plenty to do. He will, ere long, learn to value the open flatness of the land for its grand effects of light and shadow as the cloudscape changes, and broad shafts of light gleam out from between the cloud-masses, gleam brightly on distant water, or illuminate with soft glow the grassy plain. Then brown mud is changed into gleaming silver, and dark pools sparkle like burnished metal, and far inland the low hills or rows of trees are dark purple or pearly grey alternately, as the drifting light changes.



Intersecting the salt marsh are numerous water-courses, which empty themselves into a larger creek of "fleet," and by such streams are strong-grown willow trees and thorn bushes twisted and bent into weird, contorted forms by the rough winds of winter. Willow and ash, more supple and bending, offer little resistance to the wind and suffer less.

Sometimes by these willow trees not far from the sea shore is a water spring, whose clear water tumbles out of a green, mossy hollow, and with the rudest of accommodation—generally an old cask and a wooden spout—is sought after by the crews of fishing boats, who fill their "beakers" therefrom. Up the "fleet" at high water come the row-boats belonging to oyster smacks anchored in the outer channel—lads and men with black casks and buckets to renew their store of fresh water—and many a striking group may be seen. And, oh, the colour of the scene! Reddish blouse or amber oilskin, blue jerseys and scarlet knitted cap, the deep-black boats and the brilliant greens and yellows of water plants and willows, with the sparkle of ruffled water under blade of the oars and dripping from each bucket. The whole scene so primitive in character, so graceful and picturesque.

Then, following the boats with their liquid cargo out into deeper water before reaching the sea, we shall probably traverse one of the broad estuaries where the rivers Colne, Blackwater, Roach, or Crouch meet the ocean, for the most part shallow, and of sluggish stream, abounding in treacherous mud banks, and forming, behind some marshy tract, wide lagoons of still water. Fishing craft are "laying to," or quietly riding at their moorings. Where the anchored boats are most numerous is the spot near to a small region of coarse shingle and stones, partly provided by nature and improved upon by the neighbouring fisherfolk, and this strip of shingle leads across the mud to the water's edge, and gives firm foothold. Such a spot is locally designated a "hard," and it is here the boxes and barrels of fish and oysters can be landed, and fresh provisions and ship's stores taken on. Some few old and battered boats are drawn up, rough and strongly built for the boisterous weather in the North Sea, odd logs of wood and sundry spars, perhaps some netting, coils of rope and cork floats lie about, and always some picturesque figures stand engaged in gossip, or coming and going, concerned in the simple occupations of a fisherman's life.

Off the shore there is a rattle of rigging and running blocks, a chorus of strong voices, and a brown mainsail is slowly hoisted heel first, so to speak, and then the peak, next a foresail runs up to join it, and a splash tells that the mooring has been cast off, and first one smack stands out to sea, and then another, and another, one by one, then two or three together, and the little squadron which had lately occupied the channel near the hard has sped out seawards, and each little group of two or three sails quickly dwindles away into a mere speck in the distance or disappears abruptly behind the low headland.

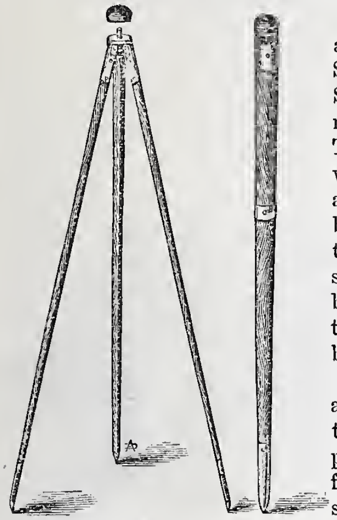
Out on that headland, with the sound of the surf at hand, and the scent of all things briny filling the air, we may watch the flocks of white sea birds feasting on the mud at the edge of the tide and hear the plaintive note of the curlew. In from the sea a strange hoarse clang as of an ill-tuned bell comes now and again on the wind. There is a bell-buoy out there which marks the entrance of the channel, and each oscillation of the waves sends forth a weird and mournful sound, and as the ships go by white sails catching the sunlight, and brown sails of barges and oyster boats heading in for the river, one thinks of stormy nights, when the sound of that sea-tossed bell and the faint glimmer of the coastguard light have been anxiously sought by the home-coming crew.

Back from the headland, under shelter of the sea-wall, stretch a hundred acres of marsh and meadow, here and there a red-tiled farm house or cottage home, a rudely made stack of coarse hay, and, above or between some better conditioned elm trees than seem usual in this district, peeps the square tower of a time-worn church. And over the whole wide expanse are dotted sheep and cattle, and horses with ragged unkempt mane and tail, rustic carts, and farm waggons crawl leisurely along the high-hedged roads, and although these are common objects of every country-side, yet out in this marsh country we are so far from the busy centres of civilisation, and the rustic simplicity is so little intruded upon, that most things possess that primitive and unconventional air, so rare and yet so precious to the picture-maker, and especially to the photographer who must take things in all their realism, and can omit or introduce so little of his own invention.

Of the objects which make for successful pictures in the salt sea marshes of Essex, only a small portion have been herein suggested, but it should have been enough for the earnest worker in landscape photography, to feel that if he has not already seen this country it at least deserves a visit. Perchance, little of what we have spoken will appeal to his sympathies, but he may find that which has escaped the writer.

Apparatus.

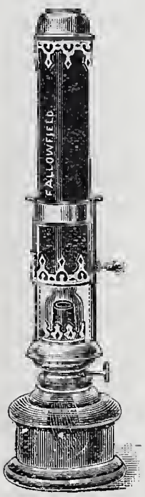
THE BLACKFRIARS ALPENSTOCK AND WALKING-STICK TRIPODS.



The Blackfriars Photographic and Sensitising Company, of 1, Surrey Row, Blackfriars Road, S.E., have submitted to us for notice one of these novelties. The stand is well made of walnut, with a nickel toe cap and clasping ring in the centre, both of which are removed and the legs then outstretched. The stand is fitted to the camera by removing the little ebonite top and screwing into the baseboard.

It is handsome and neat in appearance, and may be had in two sizes, viz., 38½ in. and 49 in., price 15s. each, and will be found an extremely satisfactory stand for hand-cameras and smaller tripod cameras, as it is very light and portable.

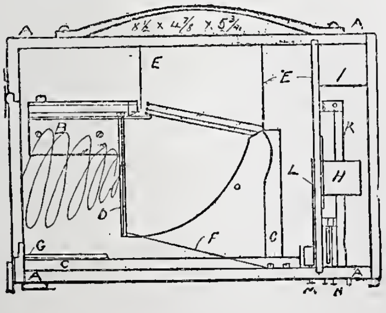
FALLOWFIELD'S NEW DOUBLE-GLASS PETROLEUM LAMP.



Jonathan Fallowfield, of 146, Charing Cross Road, W.C., has introduced a new dark-room lamp of novel design. The reservoir is of orange glass, enabling one to see how much oil is contained in it, and the burner is circular and regulated from the outside. It is provided with two chimneys, an inner one of orange glass, and an outer cylinder of deep ruby. This latter may be raised by releasing the screw pin shown at the side, and fixed in any position. We have tried this lamp in our dark-room, and find it gives an excellent light, which is safe even for the most sensitive colour-sensitive plates in the market under ordinary conditions, whilst the orange may be used for bromide work. It is a good, practical, and well made lamp, and is very cheap, too, its price being only 5s. 6d.

THE "UNIQUE" HAND-CAMERA.

Messrs. Miller and Co., of 122, Newington Butts, S.E., have explained to us the action of this new hand-camera which they are placing upon the market.



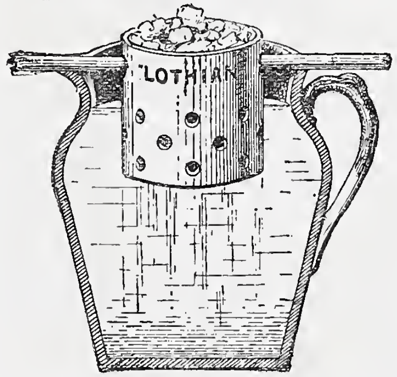
The plates are placed in specially constructed sheaths, face upwards, in the chamber between E E, which are two divisions which protect the plates from accidental light. By pulling out the lever A at the back and bottom of the camera, the uprights C engage with the plate sheath and draw it down through the segment of a circle seen in the figure, and the sheath is by the same movement brought behind the springs F, which prevent it from swinging forward again, while the back coiled spring keeps them up to register. The top of the sheaths is provided with two projecting pins which run in grooves. An exposed plate is covered by the one which is next to be exposed.

The lens is an R.R., working at $f/8$, of special construction, and is provided with rotating diaphragms which are actuated from beneath. Finders are provided, and a protecting action in concert with that over the lens prevents any chance of firing off without uncovering the lens. The shutter works at the back of the lens, and is so constructed that the lens is not uncovered whilst setting, and either time or instantaneous exposures may be given at will, the release being underneath. Focussing is effected by a special gear underneath.

From work which we have seen done with the camera, and also from a critical examination, the camera is one we can thoroughly recommend, and we hope shortly to give it a practical trial. Price, £5 5s.

THE "LOTHIAN" RAPID SOLUTION JAR.

Mr. A. H. Baird, of 15, Lothian Street, Edinburgh, has sent us a sample of one of the above novelties, which will be of very great service to all photographers. Every one knows the difficulty of rapidly making solutions of crystalline salts when they are merely placed in a bottle or jar and shaken or stirred up. The principle is not new, as Mr. Baird fairly points out, but in place of the old and dirty muslin bag this is a great improvement. As will be seen from the diagram, a stick is placed through two holes in the jar, in which is placed the substance to be dissolved, and the jar is then placed in a jug or other convenient vessel and the solution is very rapidly effected, as the water containing the salt in solution sinks to the bottom in consequence of its greater specific gravity. The jar is a simple, efficient, and time and labour saving contrivance, which at the following prices should be obtained by everyone:—1lb., 9d.; 2lb., 1s.; 6lb., 1s. 9d.



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Reviews.

Photographs at the Pall Mall Exhibition. The Photographic Publishing Company, 215, Shaftesbury Avenue, W.C. Price 10s. 6d.

This work, which is, of course, a palpable copy of our Portfolio "Photographs of the Year," contains twelve Woodbury-gravures, with letterpress, which is interspersed with process-block illustrations which in some cases are very poor, and certainly do not add to the appearance of the book. With regard to the Woodbury-gravures, some of which are of the same pictures as we have reproduced, the best is certainly a portrait of H. Sims Reeves, but many are spoilt by a peculiar patchiness, which is very marked in the case of "A Grecian Girl" and "The Love Letter," and comparing our own Glyptogravure reproduction of this latter picture, we do not think the Woodbury-gravure at all successful. With regard to the selection of the pictures, we do not agree that they are representative of the best work of the exhibition.

The A B C of the Lantern.

Barton's Buttons. Sir John Barton constructed metal buttons, which were divided into hexagonal or other shaped figures on their surface; and each surface figure was ruled with very fine close lines in different directions. One of these buttons placed in a parallel beam of light from a lantern reflects the light on to the screen, and the fine ruling acts as a diffraction grating (*q. v.*), and gives exquisite spectra of various shapes.

Beams and Pencils of Light. In many of the experiments which will be described in this book a parallel beam or pencil of light is required, and a moment's thought will show that we must have some special arrangement for obtaining this, and a special front is supplied for this purpose. The diagram, for the loan of which we are indebted to Mr. Chadwick, of Manchester (fig. 5), will show that it consists of a plano-convex lens, on which the light is converged by the condenser, and by which it is further converged by the single plano convex lens, till it meets with the plano-concave lens, the action of which is to render the pencil of light parallel. As will be seen from the diagram, Mr. Chadwick provides lenses of various foci, and also front diaphragms for a slit and circular beam of light. Lewis Wright, in his well-known work, "Optical Projection," p. 173, suggests that the condensing lens should be of 2 in. diameter and 2 in. focus, and the concave lens $\frac{3}{4}$ in. diameter, and that removable caps with apertures from 2 mm. to 16 mm. diameter should be provided to fit in the front, so that a very small pencil of light may be used. It is obvious that a makeshift arrangement may be fitted up from the front lens of the ordinary objective with an additional plano-concave lens, although not so convenient as the above figured apparatus, on account of the greater focal length of the plano-concave lens.

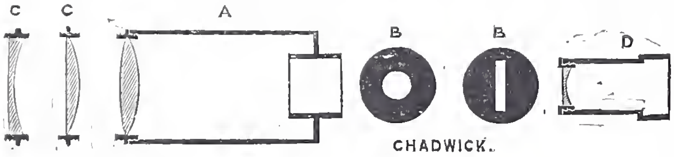

FIG. 5.

Bell, Electric. See ELECTRIC BELL.

Benzoline. This liquid, which belongs to the paraffin series, has been used with oxygen for the limelight in lieu of hydrogen. (See OXY-CARBON LIGHT.)

Biunial Lantern. As the name implies, this is essentially two lanterns, but constructed as though one lantern with two fronts. A very usual form is that shown in fig. 6, in which the two lanterns are constructed in one. On the other hand, it is sometimes convenient to be able to use the lanterns side by side as in fig. 7, in which case they are usually constructed of metal, the one shown being applicable for oil or limelight, this separation is absolutely essential when oil lamps are to be used. For dissolving as well as for ordinary exhibition purposes, when both lanterns are used, it is absolutely necessary that the discs thrown on the screen by the two lanterns should absolutely coincide; and to effect this, the fronts can be inclined by means of the milled heads shown at the top and bottom of the fronts, and as milled nuts on the lower front are loosened, a spring presses the front away from the body and thus raises the disc slightly; and the disc from the top lantern is lowered in the same way, by allowing the front to sag down slightly. Not only the slide and objective are raised or lowered by this means, but the condenser also, and therefore the optic axis is not thrown out of place. For dissolving and effects a biunial is absolutely necessary, and even for ordinary exhibition work a biunial is a great advantage, as it enables an operator when working the lantern alone to change the slides more easily and comfortably. Many are the different patterns of biunials on the market, and varied are the prices, but whilst some of us may be blessed with unlimited purses and unlimited ideas, it is by no means necessary to expend an inordinate amount on the lantern. Plain japanned-iron or plain mahogany bodied lanterns are equally as effective with first-class objectives and condensers as any of the instruments with high-falutin names and resplendent in brass, lacquer, and many-coloured woods. On the other hand, if expense is no object, then buy as much brass, as much inlaid work as you like; but it must be borne in mind that a good lecturer and a good operator, with a humble lantern, may be able to do a great deal more than an indifferent lecturer and operator with the finest lantern ever made.

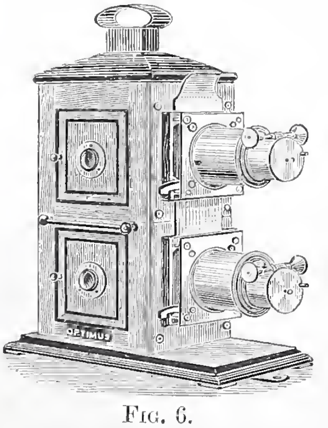

FIG. 6.

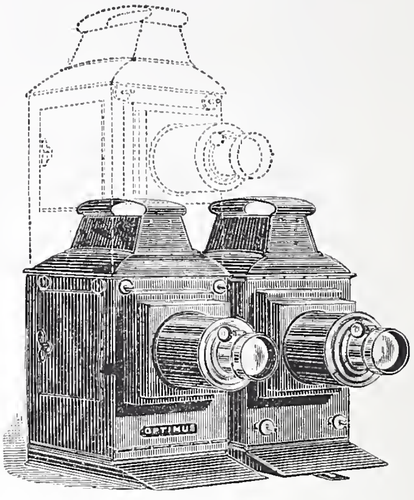

FIG. 7.

Bleaching. In lectures upon chemical or technical subjects it is sometimes necessary to show the effect of bleaching agents upon dyes, etc., and whilst many of these are by no means suitable, an extremely easy one is to fill a tank with some solution of cochineal of a brilliant crimson colour, thinning it down if too dark to show well on the screen, and adding some solution of chloride of lime, when the colour is instantly bleached.

(*To be continued.*) 49

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Leicester.—The annual meeting was held on 18th inst., Mr. J. Porritt (Vice-President) in the chair. The Treasurer presented his balance-sheet, which represented that the Society was in a sound financial condition. The following gentlemen were elected as officers for the ensuing year:—President, Mr. J. Porritt; Vice-President, Mr. A. Wilson; Council, Messrs. F. Pierpoint, G. Bankart, S. Partridge, F. Jolliffe, and J. Cook; Hon. Treasurer, Mr. A. Wilson; Hon. Secretary, Mr. H. Pickering, High Cross Street. The Hon. Secretary gave a successful demonstration of "Flashlight Photography." On the 20th an adjourned meeting was held, when it was decided to present the Hon. Secretary with a lantern and a pair of interchangeable lenses of long and short foci, as a small token of the appreciation of his past services and the courteous and indefatigable manner in which he has carried out the arduous duties of this office from the earliest days of the Society. It was also decided to hold a two days' exhibition on the 22nd and 23rd of March, in the Co-operative Hall, the exhibition to be free and non competitive in its character, when it is hoped, in addition to members' work, to secure the kind support of many of the ablest workers of the present day. The President announced that Mr. S. B. Webber, of Bromley, Kent, had kindly consented to read a paper on "Isochromatic Photography" at the next meeting, Feb. 8.

Exhibitions.

Society.	Entries close.	Opens.	Closes.	Address of Secretary.
Cleveland Camera Club ...	Jan. 25	Feb. 1	—	J. J. Hallam, 11, Amber St., Saltburn-by-the-Sea.
Rotherham Photo. Society...	—	Feb. 7	Feb. 8	H. C. Hemmingway, 6, Stanley St., Rotherham
Durham City Camera Club...	Feb. 3	Feb. 14	—	R. Hauxwell, The Avenue, Durham.
Torquay Photo. Soc.... ...	Feb. 3	Feb. 14	Feb. 18	H. C. Howell, Nutley, Torquay.
Woolwich Polytechnic Phot. Soc.	—	Feb. 16	Feb. 18	W. Dawes, 145, Chesnut Rd., Plumstead.
Holborn	—	Feb. 18	Feb. 20	F. J. Cobb, 3, Albion Grove, Barnsbury, N.
Manchester Amateur Photo. Society	—	Feb. 21	Feb. 25	Randolph Gilmore, 1B, Cooper St., Manchester.
Blackheath Camera Club ...	Slides, Feb. 28; Prints, Mar. 1	Mar. 3	Mar. 4	C. W. Piper, 46, Shooter's Hill Road (slides); Thos. B. Earle, The Art Club, Bennett Park, Blackheath (prints).
Fillebrook Atheneum ...	Feb. 20	Mar. 1	Mar 2	J. W. Spurgeon, 1, Drayton Villas, Leytonstone.
Forfar, N.B.	—	March	—	W. J. Anckorn, West Port, Arbroath, N.B.
Philadelphia (U.S.A.) Phot. Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.

PHOTOGRAPHIC SOCIETY OF IRELAND.

THE annual exhibition was formally opened on the 16th inst. by a conversazione, which was honoured by the presence of his Excellency the Lord Lieutenant, and only members and the holders of season tickets were admitted. In the first class (enlargements) six sets were sent in for competition; and the silver medal for the best set has been awarded to Mr. Victor Smith, whose enlargements are on bromide paper of exquisite softness and strength, and closely resembling the direct print. The enlargements are from a quarter-plate negative to a picture 12 in. by 10. The bronze medal in the same class has been awarded to Mr. R. M. Nichols for an enlargement from a half-plate negative to a picture 12 in. by 15. In this class also there are excellent enlargements of Goldsmith and Burke, with Trinity College in the background, taken by Mr. Strangways. The second class—landscapes—has more contributors than any of the others, and fills three bays of the large exhibition room. The silver medal has been awarded to Mr. George Mansfield, J.P. (President of the society). One of Mr. Mansfield's pictures is a direct print, 15 by 12, and the colour in some of them is very remarkable, a warm tone approaching Bartolozzi red. The bronze medal in the same class has been won by Mr. J. A. C. Ruthven, C.E., for some magnificent prints, views of scenery in the Highlands of Scotland. One of these, a photograph of Kilchurn Castle, regarded as the best single picture in the class, would have been so adjudged had there been any prize offered for a single picture. Lantern slides (class 3) will form a very interesting section, inasmuch as it is intended to give during the week exhibitions of these views with the aid of a lime-light on a 16ft. disc which has been erected at one end of the large room.

In this class the silver medal has been awarded to Miss White for a series of pictures, chiefly of architectural subjects; while the bronze medal falls to Mr. Joseph Kelsall, of Killiney. Mr. A. M. Geddes secured the silver medal in the next class—hand-camera work. Mr. Geddes' very charming set of studies were taken by a camera manufactured by the artist himself. Mr. J. White takes second place. Archæological subjects form the fifth class, and a deeply interesting class it is. Mr. Leonard R. Strangways takes first place with a set of photographs of rude stone carvings in the old cemetery at Loughcrew. Mr. Strangways, it may be remembered, produced some beautiful pictures of a similar kind of antiquities at Dowth and Newgrange last year. The bronze medal has been awarded to Mr. Geddes for a series of views of antiquities at Monasterboice and of Mellifont Abbey, near Drogheda. In this class also there is a series of very excellent pictures, nine in number, sent in by Miss White. These include views of St. Brendon's, Clonfert, and of antiquities at Clonmacnois.

The exhibition, however, is not confined to the works sent in for competition, or to the works of members of the club, very many beautiful specimens having been contributed by outsiders, while photographers and others in England and Scotland have lent specimens of their productions—all more or less of a distinctive character. There are several examples of Gotz's process work, and of Mr. John Stewart's flash-light photographs. The latter are extremely soft, and quite unlike the usual black and white pictures obtained by this process. Mr. R. M. Inglis exhibits some very clever cloud studies. Among the loan exhibits are two several specimens o platinotypes, one of which won the gold medal of the Photographic Society of India. Mr. Keene's exhibits include some beautiful landscape pictures of places in Derbyshire.

The Eastman Company show several examples of work on their new Solio paper, and also of pictures on their well-known bromide paper. They also show several very fine enlargements, notably some from negatives taken by Cembrano. Over the door is a study sent by the Autotype Company—a lion, by Gambier Bolton, who has won a high reputation as a depicter of animal life. The same company have also contributed several superb enlargements, notably those of Ludlow Castle and Durham Cathedral. Messrs. Morgan and Kidd show a magnificent enlargement of a photograph of Miss Mary Anderson from a negative taken by Van der Weyde, of Regent street, London. Mr. John Stewart, of Glasgow, has supplied some of his famous large "direct" portraits, including portraits of Bishop Dowden and Professor Blackie; and in close proximity are a series of photographs by Mr. Walsh of North of Ireland scenery, chiefly views on the Antrim Coast.

Mr. Werner has some fine samples of his work in portraiture. Messrs. Robinson and Son show a number of fine portraits. Among Mr. A. B. Mansfield's contributions is a portrait of a child, delicately coloured, and so worked up that there is little or no trace remaining of the original photograph. Mr. Mansfield has for some time made the photographing of animals a special study, and one of his best exhibits is an enlarged photograph of a Kerry cow.

The Frena hand-camera is shown by Messrs. R. and J. Beck, of London, who also show their own pattern stand camera, the Suffolk, which is extremely well made and light; also many other forms of stand and hand cameras which have many improved points in design. We might also mention some very fine photographs taken on Marion plates, which appear to us everything that could be desired, also fine enlargements from Frena negatives. There are various forms of electric lights for dark-room purposes, which would give the operator every comfort.

Messrs. Ross and Co. have contributed a number of lenses, including the new Concentric lens. Among the other contributors are Messrs. Taylor, Taylor, and Hobson, of Leicester, who show improvements in lens fittings, etc.; and the Paget Prize Plate Company, who send a large number of exhibits of their lantern slides.

PHOTOGRAPHIC SOCIETY OF INDIA.

(*Contributed.*)

The fifth annual exhibition was opened on the 20th ult., when a private view of the pictures was held, at which her Excellency Lady Lansdowne, and a small party specially invited to meet her Excellency, were present.

The present exhibition maintains the very fair level of excellence attained by the previous ones.

We are glad to notice that the medal presented by the Viceroy for the best picture in the exhibition again remains in Calcutta. It has been awarded to Messrs. Johnston and Hoffmann for No. 372, "Peaks N.E. of Simiolchu," one of the series of five bromide enlargements of views in the Himalayas, secured by Mr. Hoffmann after immense trouble at an altitude of 17,000 feet or thereabouts. We should have been more disposed to have given this particular award to Mr. F. P. Cembrano for No. 164, "A River Fog," a really exquisite bit of Thames scenery in sepia-toned platinotype to which a silver medal has been given. This and No. 162, "Sunset, Winter," by the same artist seem to us to stand out as pre-eminently "the best" pictures in the exhibition, thoroughly artistic in conception and technically faultless. Mr. Cembrano's whole series (Nos. 160 to 165) deserves the highest praise.

Mr. Shapoor N. Bhedwar exhibits some twenty odd pictures, chiefly portraits. The set of five (Nos. 82 to 86) entitled "The Consecration of a Parsi Priest" is too well known in England to need description; it gains the gold medal presented by Maharaja Sir Jotendra Mohun Tagore, K.C.S.I. The award of another gold medal is made to Mr. T. M. Brownrigg, for No. 125, "Evening, Derwentwater." Mr. M. V. Portman, of Port Blair, sends an interesting set of Andamanese portraits, landscapes, and hunting scenes, in platinotype, and secures a well-deserved bronze medal for No. 39, "Interior of a Bird's Nest Cave."

America is not so well represented as usual, but her reputation does not suffer in the hands of Mr. Clarence B. Moore, whose studies of negro children are clever and humorous, and withal full of feeling. No. 101, "Group of Three Little 'Nigs,'" gains a silver medal. Miss M. Watson, of Florence, sends a series of Italian views which gain a bronze medal. Four small frames of 11th century frescoes in a pagoda at Pagan, Burma, by Dr. F. Nœtling, of the Geological Survey, obtain a bronze medal. Mr. A. R. Dresser gains a bronze medal for "Meeting of Conway and Lledr Rivers." Dr. Newland's stirring Burmese pictures are always a welcome feature in these exhibitions, though his contribution this year seems hardly up to his usual form. Some of the pictures are apparently over-exposed, and consequently flat and lacking brilliance. No. 185, "Life and Scenes on the Chin Hills," takes a silver medal, however. Captain Bullen's "Views of Gangutti" and the "Source of the Ganges" (Nos. 220 to 228) also gain a silver medal. Mr. and Mrs. S. Francis Clarke, who figured in the awards list last year, are again well represented, and carry off a bronze and silver medal respectively. Mr. Clarke's landscapes are decidedly his strong point, though his set of genre pictures entitled "The Seven Ages of Man" (Nos. 292 to 298) is selected for the award. Mrs. Clarke excels in both classes of work. Her pictures are admirably composed and bear evidence of careful thought, while the execution is up to high professional form. The little picture entitled "Aha!" (No. 375), to which a silver medal is awarded, is equal to anything in the room.

Mr. H. P. Robinson, of Tunbridge Wells, and his son, Mr. Ralph Robinson, are regular exhibitors in Calcutta, and they have certainly not disappointed us on this occasion. The former sends two sepia-toned platinotype prints entitled "The Rising Lark" (No. 332), and "The Weir Pool" (No. 378); while the latter is as usual represented by a capital series of combined landscape and figure studies (Nos. 391 to 403). Of these, No. 396, "A Primrose by the River's Brim," will at once catch the eye, and no eye can rest upon it without pleasure. We look in vain for Messrs. Robinson's names in the list of awards, and find it difficult to understand the omission, unless it be that the exhibitors are satiated with medals and decline to compete. Mr. J. E. Austin, a former medallist, has to rest content with a silver medal for No. 344, a charming English landscape in mid-winter. There are very few photographs of objects in motion, the best being a hurdle-race (No. 351) by Mr. W. B. Crouch, which receives commendation. Mr. W. Bedford sends a charming series of views taken in the Norfolk Broads (Nos. 378 to 383) in sepia platinotype on rough paper. No. 383, "Salhouse Dyke," very justly obtains a silver medal. Mr. W. W. Winter's series of portraits is good as usual, and there is not one amongst them that is not a pretty picture. Mr. R. Hotz, of Simla and Calcutta, has also an excellent set of portraits. No. 266, a group of pretty children, gains him a well-earned medal. The Autotype Company contribute a good number of admirable specimens of carbon-printing and photogravure, chiefly reproductions of well-known paintings. This firm receives a silver medal for No. 376, an Alpine view reproduced in autotype from a negative by the late Professor Donkin. The photo-mechanical processes are well illustrated by Mr. R. Paulussen, of Vienna, who receives a gold medal, presented by H.H. the Bara Thakur Bahadur of Tipperah, for No. 221, "Pferdemarkt," a reproduction in photogravure of a painting by Brandt. Other good exhibits in this class are sent by the Photographic Office of the Survey Department, by Mr. W. L. Colls, and by the Typographic Etching Company.

Mr. F. Dunsterville, of Madras, has elected to be represented by a set of fifty stereoscopic slides, which are shown to great advantage in the society's stereoscope.

Societies' Notes.

MR. J. P. GIBSON, Hexham, and Mr. E. G. Lee, Cullercoats, will be the judges at the Durham City Camera Club exhibition.

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OXFORD UNIVERSITY PHOTOGRAPHIC CLUB.—The officers for this term are:—Hon. President, A. McMullen (Balliol); Hon. Treasurer, J. Walker, M.A. (Christ Church); Hon. Secretary, A. Eglington (Lincoln); Assistant-Secretary, Hon. G. L. Parsons (Balliol). Committee: A. H. C. James (Merton), C. J. Mead-Allen (Non. Coll.), E. F. Glynn (Merton).

◆

GLASGOW HIGH SCHOOL.—A very interesting ceremony took place in the school on Friday, the 20th inst., when Mr. Wm. Milne, head science teacher, was made the recipient of a fine camera, on the occasion of his leaving for South Africa. The presentation was made by Mr. McCall, one of the senior pupils, in a very graceful way. Mr. Milne then made a suitable reply, and promised to send the Society some of his work done at the Cape. The camera was a Shew's Eclipse, fitted with Taylor lens, and was supplied by Mr. John Trotter, Gordon Street, Glasgow.

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Peak and Dale Slides.—This lecture was delivered on Friday, January 20th, at St. Mary's School, Newmarket, by Mr. G. H., Tindall, with apparatus specially lent for the occasion by Mr. F. Hall, of Cheveley. The slides, descriptive of the scenery of this beautiful neighbourhood, together with the descriptive letterpress, were much appreciated by the audience. The entertainment was brightened at intervals with music and singing by Miss Manning. A series of local views prepared by Mr. Tindall were also shown, including the interior of St. Mary's Church, etc.

Societies' Meetings.

Aston held their first annual tea and social gathering at Burlington Hall on Thursday last. A goodly number of members and friends sat down to the tea, after which the evening was devoted to a magnificent lantern entertainment with a description of a tour through Norway, by a member (name omitted by request) of the Birmingham Photographic Society. The lecturer first exhibited a map showing route taken, and then followed views of the most magnificent scenes imaginable, notably those of a mighty glacier and a number of sun effects. The views were interspersed by some capital vocal and instrumental music ably rendered by Mrs. Bowden, Miss and Mr. Ashford.

Birmingham.—The annual meeting was held on the 12th inst., Sir J. B. Stone, President, in the chair. The Treasurer reported an exceedingly gratifying condition of the finances of the society, and drew attention to the fact that more new members had joined the society in 1892 than in any previous year. The President, in the course of his very able address, said that the Birmingham Society had made for itself a permanent place among the public bodies of the town, and a foremost place among photographic societies. He pointed out the desirability of each member having some definite object in his work, and instanced the photographic survey of Warwickshire. A prominent society such as the Birmingham Photographic Society could not, he said, shirk its responsibilities and obligations, and after explaining that through the medium of sight, information was more readily conveyed than perhaps by any other means, he exhorted the society to use to the full its power of educating those who had not the means of educating themselves, by extensive free exhibitions of pictures, and by widened enterprise in connection with the lantern entertainments. The following gentlemen were elected officers and members of the council for 1893:—President, Sir J. B. Stone, J.P., F.G.S, F.R.G.S.; Vice-Presidents, J. J. Button, J. T. Mousley, J. H. Pickard, W. Jones; Council, F. S. Goode, A. R. Longmore, E. Underwood, A. J. Leeson, Geo. Thomason, G. E. Miller, T. Taylor, E. C. Middleton; Treasurer, W. Rooke; Librarian, W. S. Horton; Hon. Sec., James Simkins; Assistant Hon. Sec., Ernest Winn.

Brixton and Clapham.—At the ordinary meeting held on the 7th inst., Mr. W. H. Harrison being in the chair, a paper was read by Mr. W. Thomas on the "Hand-camera and its Use in Picture-making." He claimed that where used properly and its limitations recognised, as good pictures could be done (and were being done by a few) as with a camera worked in the ordinary manner on a tripod, any class of subject where full exposure could be obtained in $\frac{1}{10}$ to even one second being well within its range. Whatever form of camera was used, it was necessary for real work in picture-making that it contain a lens of the very best quality, and where one lens only was possessed, he found a rectilinear lens of five to six inch focus would answer better than any other. One of the things Mr. Thomas laid stress on was the necessity of having good finders, and as large as possible, which would show just the amount of subject and no more. After summing up the various advantages of slow *v.* rapid plates, he said working with one speed of plates as he did, he found that for a greater part of the year the plate had yet to appear that was too quick for all-round work. On the question of holding the camera during exposure, Mr. Thomas said that the best position was that which enabled one to use the finders easiest, and to run least chance of movement. This varied with different workers, some finding under the arm suiting them best, others, amongst them himself, preferring holding it in front of the chest. Whichever way it was held, ease was required to avoid movement. On the question of development, the first consideration was to get all the necessary detail out satisfactorily, then redevelop for density, and by that means produce negatives worthy of carbon and platinum printing. Numerous examples of work in support of the statements made were shown. The Chairman said he himself advocated the use of lenses of longer focus for hand-camera work, as they gave a truer view as originally conceived by the eye. He thought, however, that a camera should be a stand camera primarily, and a hand-camera secondarily. The discussion was continued by Messrs. Butler, Coade, Dockree, Goldby, Howard, and other members.

Chorley.—On the 20th inst. the prize lantern slides of a contemporary were exhibited in the lecture room of the Polytechnic, Limited, before a fair attendance of members and their friends. Mr. Richard Gill, who subsequently read out the titles of the various subjects, explained in a most appropriate speech how they were able to give the exhibition that evening, and said although the members of the photographic society would be most interested, be believed the ladies and gentlemen who had favoured them with their presence would derive some pleasure from the pictures which would be thrown on the screen.

Croydon (Camera).—On the 16th inst., the President, Mr. H. Maclean, F.A.S., in the chair, upon his proposition, seconded by Mr.

Gay Wilkinson, the following members were appointed:—Vice-Presidents, the Hon. Sydney Herbert, M.P., and Mr. T. F. Edridge, J.P. Mr. Cembrano exhibited his admirable Granada and Alhambra slides, and gave an interesting lecturette on a number of ethnographical, archæological, and personal topics suggested by the various views. The chief technical point elucidated was that, differing from many other authorities, Mr. Cembrano advocated the use for interiors of the quickest plate obtainable; he having so successfully employed Thomas's extra-rapid thickly-coated plates.

Durham.—The annual meeting was held on the 19th inst., Vice-President, Councillor E. White, in the chair. The Hon. Secretary in his report congratulated the members on the wonderful strides the club had made since its formation eleven months ago. The following officers were elected:—President, Rev. H. E. Fox, M.A.; Vice-Presidents, Dr. Barron and Councillor E. White; Hon. Secretary, Mr. Robert Hauxwell; Hon. Treasurer, Councillor W. Gray; Auditor, Mr. A. Appleton; Council, Messrs. Bater, Chapelow, Green, and Morson.

Eastbourne (Phot. Soc.)—Ordinary meeting on 18th inst.; President, Mr. H. Habgood. Secretary has filled following vacant dates: February 22nd, "Amidol," Mr. Morgan, March 1st, Eastman's Demonstrator. April 5th, "Cresco Fylma," by the Secretary, E. Burnham. Members' lantern night; also prize slides in competition instituted by *H. C. and L. Review* were shown. Mr. Carpenter's flower studies much admired.

Hackney.—Weekly meeting on the 17th inst., Mr. G. Hankins in the chair. The Treasurer gave a short account of the finances respecting the recent exhibition. The Hon. Secretary showed some smokeless powder of the Magnesium Company, Battersea, which was tried in Messrs. Rudowsky's lamp. Comparatively there was great advantage over ordinary magnesium powder, as it seemed to clear very much, Mr. Beckett observing that firemen were not necessary as recently were at London and Provincial. Mr. Paget was thanked for his attendance with the lamp, and was informed by Mr. Beckett that their retouching desk (electric), which he was requested by the society to try and report on, did very materially save time and gave a very fine stipple, which he thought advantageous. The Hon. Secretary showed Marion's eikonogen cartridges, and the form they were sending out cartridges of hypo and theonine. Mr. Carpenter showed Rendell's lantern slide printing frame, and a box lid with a ground-glass plate in to view lantern slides through. From the question-box, "What would be the probable exposure at *f*/8 for snow scenes?" Mr. Grant said he would give a full exposure and use very little pyro. Mr. Herbert Smith held the same opinion, but said judgment was required. Mr. Dean and Mr. Gosling had recently taken some snow pictures and had given 10 sec., *f*/32, slow plate, and reported a pretty correct result. Mr. R. Beckett said the exposure would depend very much on the lighting. The Chairman then called on Mr. S. T. Beckett for his paper on "Lantern Slide Colouring," but as the evening was somewhat advanced, he was unable to deal very fully with the subject. He thought very little attention had been given generally to this interesting subject, and explained in a concise and lucid manner the way to colour slides, choice of colours, materials, etc., after which slides he had coloured were put through the lantern and commented on by him. Birds were frequently made from spots on the plates, and so helped to hide what sometimes would be a fatal defect to an otherwise good plate. Colours look to the naked eye more bright than when shown through the lantern.

Harringay.—Ordinary meeting, Thursday, January 19th; Mr. C. Watson presided. Negatives were shown by Messrs. Towers, Watson, Ball, and Simmonds; and Mr. Dowsett showed an exceedingly good whole-plate negative taken with a Lancaster half-plate single lens, smallest stop. Mr. C. Frith showed some Alpha prints, which were also very good. One new member was elected, and Mr. Ball was elected Librarian and Curator. The following gentlemen were announced as being patrons of the Society: Rev. W. Frith, F.R.G.S., Valentine Blanchard, and Chas. W. Hastings. Mr. Towers proposed a vote of thanks to Mr. C. Frith for the kind service he had rendered during the time the Society had been in existence, and, in response, he (the Secretary) said it had been a great pleasure to him, and he hoped to do much more.

Hexham.—The first annual meeting took place on the 17th inst., Mr. T. Percy Edwards presiding. After the nomination and election of officers for the ensuing year, and one new member (Mr. Fred Russell) had been elected, the Hon. Secretary (Mr. John Gibson, jun.) read his report, which stated that during the past year the Society had made an effort to instruct its members in the principles and practice of the photographic art by means of papers, practical demonstrations, outdoor meetings, and lantern evenings. In order to stimulate the interest of the members and to improve their work, it was resolved to hold a competition at the end of the year for new work done during the ensuing season. The Hon. Secretary will be pleased to furnish any information to intending members, as they now can be enrolled.

Kendal.—The usual monthly meeting was held on the 11th inst. Instead of a paper being read and considered, a number of questions, which had been previously sent in to the Secretary by various members desiring information, were read out, and answered by one or other of those present. As might be expected, many of these answers elicited a difference of opinion, and thus gave rise to much lively and interesting discussion. This new departure was on the whole considered successful, giving opportunity, as it did, to many to bring forward difficulties and have them answered in a way not always possible at an ordinary meeting where a paper has been read and the discussion that follows naturally turns upon it alone. A few photographic novelties were also exhibited, one being a very neat and compact little stereoscope, made by Messrs. Chadwick, of Manchester, also two new lantern slide carriers; and an "Adams" hand-camera, a simple little apparatus for reducing plates to lantern slide size, was exhibited in connection with one of the questions.

North London.—On the 17th inst., Mr. Douglas in the chair, first meeting at Canonbury Tower, where the society has obtained very comfortable quarters. This being the adjourned general meeting, the agenda paper contained only routine business. The officers and council for the year were finally elected: President, Mr. J. T. Taylor; Council, the Rev. E. Healy, Messrs. J. Brewer, E. W. Porfitt, W. Bishop, and J. Douglas; Curator, Mr. Few; Hon. Secretary, Mr. W. T. Coventon, 50, Highbury Park, N. The meeting on February 7th is a technical meeting, and February 21st is a lantern night.

Oxford.—A most successful lantern and musical entertainment was given on 19th inst., to a crowded audience in the lower lecture room of the Wesleyan Chapel. The chair was taken by the President. Mr. Kerry, M.A., Exeter College, gave the use of his lantern for the occasion, and the description of the views were read by Mr. Hawkins. The Leeds Photographic Society deserve the best thanks of all lantern-slide lovers for the beautiful set of pictures presented by them to the P.S.G B. Mr. W. B. Hawkins, Gore Court, Sittingbourne, was elected a member of the society. The subject for the next members' competition is "Winter Scenery." Mr. C. Court Cole, Folly Bridge, has succeeded Mr. Bellamy, F.R.Met. Soc., as Secretary.

Spen Valley.—The ordinary monthly meeting was held on 10th inst., Dr. Farrow in the chair. There was a fair attendance. The monthly competition for December, "A Landscape," was adjudicated upon, Mr. H. Jackson securing the award out of about twelve exhibits, for a snow scene. The January competition, "Mischief," was then voted upon; there being only two exhibits, Mr. Hirst being awarded the prize for a stereo picture. Mr. G. T. Markland then read a paper on "Enlargement," from a contemporary, which was listened to with considerable interest by the members, after which a short discussion followed.

Leytonstone.—Ordinary meeting held on 11th inst., Mr. A. P. Wire in the chair. Mr. Tom Symmons gave a lecturette, "Small *versus* Large Cameras." Having explained the various sizes, he went into the advantages and disadvantages. In the larger sizes he thought that there were a number of drawbacks—(1) the expense of the outfit; (2) cost of materials; (3) owing to the weight, the great difficulty in getting about. He having had experience with large cameras, would not advise any beginner to exceed whole-plate; in fact, if only one camera was to be purchased that should be half-plate. The recent exhibition had proved that enlargements were to be had from small negatives that were equal, and in some cases better than direct prints, owing to the facility of dodging and getting better effect in the process of enlargement. He next urged the great importance of getting the best of apparatus. In the discussion which followed, the general verdict was in favour of small cameras.

Shropshire.—The annual general meeting was held on the 11th inst., and the following officers appointed: President, Mr. W. W. Naunton; Vice-Presidents, Messrs. J. R. Greatorex, G. Bidlake, W. S. Buddicom, M. J. Harding; Treasurer, W. Burson; Hon. Secretary, Martin J. Harding; Assistant Secretary, Wallace Heath; Council, Messrs. W. Alltree, W. Bowdler, Dr. Cuxton, J. L. Della Porta, R. J. Irwin, W. G. Preece, J. Pyefinch, F. W. Williams. A special vote of thanks was passed to Mr. Naunton for his valuable services as secretary since the formation of the club, and to Mr. Irwin for his services as lanternist. A sub-committee was appointed to consider a scheme for acquiring permanent club-rooms, including a dark-room; and five new members were elected, bringing the roll up to sixty.

Woolwich.—The fortnightly meeting was held. After some preliminary business, which included the election of three new members, Messrs. Farlie, Davis, and Ettles, the Chairman called upon Mr. W. H. Dawson to proceed with his lecture entitled "Photographic Chemicals and their Impurities." It is hardly necessary to say that the lecturer was thoroughly at home with his subject, and great interest was centre upon him as he described one after the other many of the chemicals in everyday use, illustrating his remarks in a number of useful and successful experiments.

Leeds Y. M. C. A.).—The annual meeting and election of officers took place on 13th inst., when the following were elected to act for the ensuing year. President, Mr. T. R. Thompson; Hon. Secretary and Treasurer, Messrs. H. Eastwood and J. Hazelip. After which an instructive hour was pleasantly spent in watching the demonstration of "Transferotype Printing," by Mr. T. P. Goddard.

Lewisham.—On 20th inst., Mr. Alf. H. Miles (Vice-President) gave an interesting account of the club's outing to Rochester last year, where, through the courtesy of the Mayor, special facilities were obtained for photographing the various historical buildings of the city. To illustrate his remarks, the lantern was brought into requisition, most of the members who took part in the outing contributing slides. Of course, the cathedral and castle came in for the greatest share of their attention, but amongst others might be mentioned the Restoration House where Charles II. stopped on his return to England. At the conclusion of the lecture Mr. Miles was presented with an album containing a selection of the views by the members of the party.

South London.—Ordinary meeting held on 16th inst., the President, Mr. F. W. Edwards, in the chair. The state of Mr. E. J. Wall's health not permitting him to venture out in the inclement weather, his paper on "Isochromatic Photography" was deferred, and he kindly sent a set of lantern slides illustrative of "The Peak and its Neighbourhood, Derbyshire" (accompanied by a printed description), which were shown in the society's lantern, and much appreciated by the members present.

Southsea.—The annual meeting was held on the 11th inst., the President in the chair. The officers and council were all re-elected for the ensuing year. A detailed report of the proceedings and work of the society during 1892 was read, and a prospective programme for the current year was announced. The society is in a sound financial position, and the roll of members is well maintained. A series of demonstrations and lantern exhibitions is being arranged for the informal meetings. It has been decided that the society shall contribute an album to the series about to be formed by the Photographic Society of Great Britain, the object of which is to show the varied results obtainable from any one negative by variations of the same printing process. It is thought that such a collection will prove of much interest on circulation, and is a new departure. Amateurs wishing to join the society should address the Hon. Secretary, Ordnance Lodge, Portsmouth.

Stockton.—The annual meeting was held on 10th inst., Mr. J. H. Jackson presiding. The Treasurer's report showed the society to be in a satisfactory condition, and the Secretary reported an increase in the average attendance at the meetings during the past year, accounted for no doubt by the fact that practical demonstrations have been given at the meetings. The Secretary has in course of construction a programme for the year, which consists chiefly of practical work by some of the best photographers in the North of England. Mr. J. H. Draper was appointed President, and Mr. J. E. Ellam, Yarm, unanimously reappointed Hon. Secretary.

Sutton.—A meeting was held on 5th inst., Mr. Buchanan Wollaston giving the members of the photographic section a pleasant and instructive demonstration on "Platinotype Printing." In this new method good results may be gained from weak negatives, provided sufficient, or even a little over exposure has been given. Or a cold, flat negative may be made to give prints almost stereoscopic in effect by simply brushing foreground portions over with the normal or very slightly diluted stock solution. The full strength can also be used with advantage to prints that have been printed under pale blue glass. Glycerine is also very useful, acting as a mechanical varnish to portions that require slow development, and also to keep hair in portrait printing light. In vignetting it is invaluable.

Tooting.—Ordinary meeting on the 19th inst., the President in the chair. Mr. L. E. Morgan, of Messrs. Fuerst Bros., demonstrated the properties of Amidol as a developer. He proceeded with his demonstration in a similar manner to that fully reported by the Putney Society in our last issue. It is therefore unnecessary to give full details in this notice.

Woolwich (Polytechnic).—At the ordinary meeting on the 16th inst. a demonstration was given by Messrs. Hill Bros., Surbiton, of their Cresco Fylma enlarging process. Contrary to expectations, the process proved simplicity itself. A half-plate transparency was placed in the solution, which in a short time caused the film to float. After being allowed to soak for a few minutes it was removed to a dish containing clean water, where it remained for ten minutes. On removal it completely covered a whole-plate opal without the slightest distortion. Several questions were asked.

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SOCIETIES' FIXTURES.

Jan. 26.—The Photo Club.—Children's Entertainment at 6.30.
,, 26.—Louth.—Annual Exhibition at Town Hall.
,, 26.—Liverpool.—"Robinson's Picture Making by Photography," Mr. C. W. Hastings.
,, 26.—Oldham.—Lecture: "To Oberammergau and Back in 1890."
,, 26.—London and Provincial.—"Photographing Paintings by Artificial Light," Mr. W. E. Debenham.
,, 26.—Camera Club.—"Development—not Exposure—the Determining Factor in Photographic Procedure," Mr. H. E. Armstrong.
,, 26.—Aston.—"How to Make a Lantern Slide," Mr. George Pridden.
,, 27.—Holborn.—Lantern Night, P.S.G.B. 1892 Slides.
,, 27.—Croydon (Micro.)—Technical Evening.
,, 28.—Hull.—"Mounting."
,, 30.—S Manchester.—"A Trip to Switzerland," illustrated, by Mr. C. Lord.
,, 30.—Richmond.—Demonstration of Collotype Printing at Messrs. Morgan and Kidd's Works, by Mr. Kidd.
,, 30.—Wakefield.—Lantern Exhibition.
,, 30.—Darlington.—Judging of Members' Competition Slides.
,, 30.—Camera Club.—"How to Develop with Amidol," Demonstration, Mr. E. L. Morgan.
,, 31.—Gloucestershire.—Exhibition of Members' Work.
,, 31.—Herefordshire.—Last Day for receiving Slides for Competition.
,, 31.—Halifax.—"Stereoscopic Photography," Mr. A. T. Gray.
,, 31.—Hackney.—"Transparencies by the Carbon Process."
,, 31.—Manchester (A. P.)—Annual Meeting and Auction (Mr. W. E. Debenham).
Feb. 1.—Blackheath.—An Evening with Mr. E. J. Wall, Editor "A. P."
,, 1.—The Photo Club.—"The Limelight and other Illuminants for the Lantern."
,, 1.—Wakefield.—Further Criticism of Lantern Slides.
,, 1.—Elizabethan.—Members' Evening for Practical Work.
,, 1.—York.—The Hull Slides.
,, 2.—Hull.—Photographic Society of Great Britain.
,, 2.—Liverpool (A. P. A.).—Mr. E. M. Tunstall.
,, 2.—London and Provincial.—Special Lantern Evening, "Norway and its People," Mr. S. J. Beckett.
,, 2.—Camera Club.—Lantern Evening.
,, 2.—Leigh.—"Emulsion," Mr. T. Haddock.
,, 3.—Brighton and Sussex.—Lantern Night.
,, 3.—Holborn.—Lecture by Mr. A. Horsley Hinton.

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Thos. Illingworth and Co., the well-known printers and enlargers, have just removed into larger and more commodious premises situate at Willesden Junction, N.W., and they have also sent us a capital bromide print of their new premises.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

Rules.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom plume.*
4. All matters for these columns MUST be received by TUESDAY MORNING'S Post.
5. The Editor does not undertake to answer questions by post.
6. In answering Queries, correspondents are requested to mention, in every instance, the *number and full title of the query* referred to.

QUERIES.

5914. **Oil for Lantern.**—What is the best kind of oil for use with an optical lantern?—J. B. S.

5915. **Platino. Printing-Out Paper for Matt Surface.**—Could any of your readers tell me how to sensitise for the above paper, with instructions?—Platina Paper.

5916. **Bromide Paper.**—Could any of your readers tell me of a good developer for bromide paper to get grey tones with hydroquinone?—Grey Tone.

5917. **Negatives Wanted.**—Would any of your numerous contributors loan me some negatives, any size up to 7½ by 5, to take lantern slides (by contact form) for the amusement of children? Carriage paid both ways, of course.—G. W.

5918. **Hawarden.**—Could any brother amateur give me a little history of Hawarden Castle and Church, the seat of W. E. Gladstone, as I have a few slides and should like a little reading to them? Thanks in anticipation.—Oak.

Correspondents not seeing their queries inserted are requested to look for the same under "Editorial."

QUERIES UNANSWERED.

Nov. 25th.—Nos. 5880, 5881.
Dec. 2nd.—Nos. 5886, 5890.
,, 9th.—No. 5894.
,, 16th.—No. 5900.
,, 23rd.—Nos. 5902, 5903.
Jan 6th.—Nos. 5906, 5907, 5908, 5909.
,, 13th.—Nos. 5910, 5911, 5912, 5913.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week This we much regret.*—Ed. Am. Phot.

W. E. A.—Prints safely to hand. (1) Gotz recommends several baths; the following is the simplest.

Water..	35 oz.
Ammonium sulphocyanide ..	5 dram.
Chloride of gold	15 gr.

Add about 6 oz. of water, and stir till the bath is clear and white. (2) Any mount cutter, or try Hannam and Co., Soho Square, London, W. (3) The idea of backing a plate is to prevent halation or obliteration of the fine boughs, etc, projecting against a bright sky by reflection of the light from the back of the plate. (3) Use the' pyro and ammonia developer the makers recommend for their plates.

W. H. R. B.—(1) Yes, the lens is a very good one, and we could not suggest a better, and it is far superior to the cheap French and American lenses. For portraits outdoors the aperture is quite large enough; the 7 by 5 is the better size. (2) There would be no difference between pictures taken with the two lenses you name under precisely similar conditions. The Waterhouse diaphragms are equally as good as iris diaphragms. (3) An R.R. working at $f/8$ would be quite quick enough for instantaneous work outdoors, and also for fairly quick portraits indoors, and also cats and dogs indoors. A Euryscope requires exactly the same exposure as an R.R. when working at same aperture, and with same light and plate. (4) The idea of using the sulphite with the soda is merely to prevent the plate staining. If you want it to preserve the pyro, dissolve it in the water, add the nitric acid and then the pyro. Amidol may be used in the same dish that pyro has been used in, provided it is clean. Amidol is stated to permit of shorter exposure, but we are not prepared to state this definitely, though we believe it so acts. (5) The only advantage of using a lens on a smaller plate than what it is intended for, is that the centre of the field being used only, it is probable that the lens would not have to be stopped down so much to cover the small plate as a lens which was made for the small plate. Under exactly the same conditions of stop, light, and plate one lens is as rapid as another.

J. Shaw.—We have not yet criticised the slides. The competition you refer to was a print competition.

M. A.—(A) Under-exposure is the cause of your dense high lights. Your best plan will be to treat the negative with—

Bichromate of potash..	5 parts
Alum	1 „
Bromide of potash	10 „
Hydrochloric acid	1 „
Water	100 „

In this the image will become bleached. Wash thoroughly for at least an hour, and then redevelop with ferrous oxalate developer, and as soon as the image is developed in the shadows, and before it is reduced right through to the glass in the faces, wash and refix. Your negative will then be soft and harmonious. These operations can be performed in daylight. (B) Write to Park, Station Buildings, Acton Street, Kingsland, N., for particulars of Bruno's hand-camera, which will just answer your requirements. For touring, films; for home work, plates.

Trix.—(1) You do not state what bath it is. There would certainly be no harm in trying, because you could easily tone the prints afterwards in a fresh bath. (2) Yes, treat the Solio paper exactly as described in your letter for glazed surfaces, and the ground glass will do, but the finer the better. (3) No, albumenised paper will not give a matt-surface. (4) No, the negative must be dry, and you can easily tell from the appearance whether it is reduced enough. It is not an easy process. (5) We know the lenses you name, and whilst you may get a good one you may also get an inferior one, and the chances are in favour of the latter. A good lens is always worth paying for.

W. A. R.—We insert your letter, but you will find on p. 461, December 23rd, what will answer some of your queries.

Onissa.—Fallowfield's Facile will probably suit you. Write for particulars, 146, Charing Cross Road, W.

J. Faulkner.—The spots may be caused by dirty fingers. The bath should always be neutral, and the paper well washed first. Add a little carbonate of soda to your bath, which, by the by, you do not name, so that we can only guess that it is the simple sulphocyanide.

Jay Hay.—(1) Slightly over-printed; negative strikes us as being somewhat thin, and capable of being improved by intensification with mercury and sulphite of soda. (2) Good. (3) Wants clouds. (4) Good. (5) Wants the branches over tower, painted out. (6) Wants clouds. (7) Faultless. (8) Tree on the left at top wants painting out. (9) Good. (10) A little too dark. (11) Only wants clouds. (12, 13, and 14) Ditto. The sooner you exhibit the better. You ought to be able to take a medal at once with 7, which is one of the finest things we have seen for a long time; we should strongly advise you to enlarge some of your shots, so as to make enlarged negatives, and print from them in carbon, platinotype, and bromide rough surfaces, and go for medals. You are over-toning for sepia, and blacks are very difficult to get. 11, 9, 7, and 2 are the best, we think. Ferric oxalate is made by adding ammonia to ferric chloride, collecting, washing, and draining the precipitate, and dissolving in oxalic acid. This process has been improved lately, if you are going to try it, we can send you on details if you like. We do not think it makes much difference what shutter you have, but we will write the gentleman named.

R. H. Mercer.—It is obvious that at the price named it is impossible to obtain a hand-camera with a first-class lens. Still, the one you mention is as good as any at the price, and the plates come to no harm by being touched with the fingers through the bag.

Ignoramus.—We should certainly recommend No. 3 lens, even in preference to the combination. We see no advantage in getting a lens of a larger size plate.

W. S. M.—The amount of light lost by passing through ground glass varies considerably with the fineness of the ground surface, but ordinarily you may reckon about 33 per cent., so that your 40 sec. exposure would be increased to about 53 sec.

A. P. Speakman.—You can just snap your fingers at the authorities if you obtain a portable studio and put it on wheels, when it becomes a carriage. Still, you could depend upon good results with magnesium. Can you read French? If so, we can lend you a very good book on the subject, which is, in fact, a resumé of everything that has been published on the subject. There would be no danger of fire. The two best lamps in the market are the "Optimus" and the "Todd-Forret."

Kroc.—To copy the same size there must be double the equiv. focus between lens and objects and also between lens and plate. Probably your camera would not rack out far enough.

C. H. Smith.—(1) We believe you can obtain the doeskin leather for making changing bags from Platt and Witte, or Park, both advertisers in our columns. (2) It is perfectly true that some plates are more sensitive to one developer than another, but it is difficult to state definitely the reduction in any given exposure. Amidol will give you best results for instantaneous work.

J. R. B.—(1)—We prefer No. 1, and the swing-back is a great advantage. (2) Amidol will probably suit you instead of pyro. (3) Yes, the shutters supplied with cameras named would be quite quick enough for instantaneous work. (4) To get a good result of a stained-glass window you must use isochromatic or colour-sensitive plates, and as there is a good deal of red in it we should suggest Obernetter's, to be had from Gotz, 19, Buckingham Street, Strand, or you can use either the Ilford or Edwards' medium isochromatic plates instead, if you like. As there is also a good deal of blue, you must use a yellow screen, so as to cut this down. We presume you want to take the window only, and not the interior of church as well. The exposure will depend entirely on the light and depth of tint of your colour screen. We cannot, unfortunately, give you any assistance on this point. We should prefer to work with a bright light short of sunlight. Development as usual.

Amidol.—For diffused light the east, but you might work with the window in the south, provided you had a screen of tissue paper or ground-glass to diffuse the light. Will you give us the main ideas of what you want in a photographic chemistry, and we may perhaps be able to answer you?

R.E.A.—1. The dog was, we should say, much over-exposed and wrongly developed, and the picture is under-exposed and under-developed, and the camera was all cocked up, and hence the frame is much narrower at the top than the bottom. All the prints are much over-toned.

T. Brawell.—We should recommend a pair of No. 2 lenses bought through No. 4. We have not yet seen the meters and cannot speak definitely.

John Gibson.—No, at present we have no such intention.

Jonathan.—We shall be pleased to lend you prints.

Enquirer.—(1) A, fully exposed and under-developed; the curious fog at both ends of the plate is, we should say, due to light having had access to the plate whilst in the box, probably whilst you were filling your slides. B, very much over-exposed and under-developed. C, under-exposed and show signs of marginal fog. D, under-exposed. (2) We in our own practice generally use pyro and the American standard soda and potash developer, and we recommend this to beginners, as there is less chance of fog. Soak your plate in the pyro solution for about 30 sec., pour off, add a quarter the quantity of ammonia or soda and apply to the plate and reapply, adding more alkali as required. (3) Pyro and ammonia is, we believe, still the best all-round developer, and the easiest to control. Your second batch of quarter-plates are all so fearfully under-developed that it is impossible to do more than say this. If you will expose four half-plates and send to us with full details, we will develop for you, and return, to show you what to aim at and tell you how we get it.

Gerald Wetherman.—The best book is, we think, Wilkinson's, price 5s., from Hampton, Judd, and Co., 13, Cursitor Street, E.C. No, we do not think you could get plates already coated for the Pretsch process; they are not much trouble to make, and far less costly than using ordinary dry plates, though these latter may be used.

C.C.—(1) There is no book on "Home Portraiture." We had a series of articles on the subject in vol. 13. (2) Calcium chloride should be placed in an old saucer or gallipot, and put into a hot oven, and kept there for an hour or so. (3) An R. R. of 7 in. focus should cover a half-plate at $f/8$. (4) Get an adapter made for the lens; we see no other way to get out of the trouble.

Electric.—(1) The silvery spots are due to the absorption of free nitrate of silver from the paper by the damp gelatine. The only method of preventing these spots is by varnishing the negatives. (2) Probably your lens is of too long a focus in the lantern. (3) Perken, Son, and Rayment have an electric dark-room lamp, so you might start one yourself, making the lamp ruby by dipping an ordinary incandescent lamp into ruby varnish.

J. H. M.—(1) There is no reason why, if you darken the whole of the window, you should not dispense with the cloth between lens and negative, and with a camera of this description you will only be able to focus sharply by shifting the camera or easel bearing the paper. (2) We should say your negatives were too thin to give good tones, but all your prints are over-toned, according to our idea. To obtain warm purple tones there should be a trace of brown in the deepest shadow.

Xerxes.—(1) Ask any whitewasher what distempering is; he would be the best man to make distemper for you. (2) Amidol may be kept in a dry state, and weighed out as required, and if kept in a well-stoppered bottle will not spoil.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence.*** *Every additional* ***three*** *words,* ***one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one*** *word; compound words count as* ***two*** *words.)*

DEPOSITS.—*The money for goods forwarded on approval may be deposited with the Publishers of the* Amateur Photographer, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge* 1s.

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

Burnisher.—Good burnisher, steel roller 13 in long, 2 in breadth, cost 30s., will take 20s., a bargain.—Charles Firth, Glenhurst, Heckmondwike.

Burnisher, loose bar, as new, 12s.; also a few dozens of plate mark mounts, 5s. per doz., all perfect.—J. H. Broadbelt, Lyon Street, Shaw.

Cameras, etc.—Lancaster half-plate Instantograph, three slides, case, etc., £2 10s.—F. J. Clarke, Charlotte Villa, Fairlop Road, Leytonstone.

Burnisher, 10 in., first class, list price £3, will sell for 20s.; also splendid half-plate Tourist camera, three double slides, with extension back and two double slides for whole-plates, cash price £6; approval.—Address, Macdonald, 3, Northumberland Street, Workington.

Whole-plate camera, brass-bound, measures when closed 10½ by 8 by 2¾, suitable for lady or outdoor work, brand new, cost £7 10s., will take £3.—Lancet, 1, Hungerford Villas, Long Ditton, Surrey.

Cameras, Lenses, etc.—Copeland's half-plate camera, leather bellows, extra front, three double backs, rectilinear lens, Waterhouse diaphragms, only used few times, price 6 guineas; Lancaster's quarter-plate enlarging lantern, 5 in. condenser, 40s.; Lancaster's quarter-plate Omnigraph, 15s.; approval if deposit with publishers.—Peck, Brewery, Paignton.

Enlarging Apparatus.—Objective. Lancaster's quarter-plate enlarging objective, good condition, for sale. What offers?—Tytler, 8, Grosvenor Street, Edinburgh.

Hand-Cameras, etc.—Adams' Ideal quarter-plate hand-camera, fitted with Wray R.R. lens and made to focus, only used a few times, cost £8 10s., price £6 15s.; no exchange.—W. Bamford, Ivy Cottage, Oulder Hill, Rochdale.

Adams' Ideal hand-camera (Wray's lens), new last October, £7.—Dunsford, 9, Broadway, Ludgate Hill.

Lantern Apparatus.—Two lantern objectives, 5½ in. focus, rack and pinion, 20s. the pair, or 11s. each.—Summers, 148, Stanstead Road, Forest Hill.

Lantern Slides.—20 miscellaneous photographic slides, and four coloured comic, 8s.—Milburn, Photographer, Hexham.

Lenses, etc.—Ross' No. 2 portable symmetrical lens, splendid condition, £2 10s.—Rover, 111, Shakespeare Road, Herne Hill, S.E.

Marion's 10 by 8 wide angle rectilinear, 65s., cost £5; approval.—Michelmore, Broadstone, Dartmouth.

Sets.—Lancaster's Merveilleux set, new, two double dark slides, chemicals, etc., complete for producing finished photographs, 30s., cheap, or offers in exchange.—Elce, 241, Finchley Road, Hampstead.

Half-plate Underwood's camera, folds to 2⅔ in., Taylor and Hobson's R.R. lens, Thornton Pickard time-instantaneous shutter, three slides, finder, three-fold legs, cost £10, £7 7s., or without legs and finder.—H. Lee, Thornhurst, Wolverhampton.

Underwood's Instanto half plate, three Tylar's metal slides. Instanto lens, Lancaster's elliptical shutter, folding ash stand, waterproof carrying case, bargain, 65s.; approval; deposit.—Fred Maukillie, Bank, Holbeach.

Lancaster's Quarter Instantograph, slide, lens, tripod, printing frames, plate box, cutting shape, lamp, print-clips, dishes, etc., £2.—Arthur Smith, Library, Hindley, Wigan.

Lancaster's quarter-plate Instantograph camera, lens, shutter, and one double dark slide, as new, three Tylar's metal double dark slides, with adapter and focussing screen, painted case containing the lot, £2 10s.; well-made mahogany square bellows camera, with two double dark slides, with folding ash tripod, 18s.—E. Sully, 104, London Road, East Grinstead, Sussex.

Quarter-plate brass-bound Instantograph, with lens and See-saw shutter, three double backs, new last season, four-fold tripod, changing bag, four dishes, four printing frames, all in good condition, £3.—Tweeddale, 95, Weedington Road, Kentish Town.

Half plate Imperial (Sands and Hunter's), extra front, three double slides, R.R. lens, Newman shutter, tripod, and baize-lined solid leather case with lever lock and strap, price complete £10, cost nearly double; approval; deposit.—No. 367, office of this paper, 1, Creed Lane, E.C.

Lancaster half Instantograph, double dark slide, instantaneous lens and shutter, stand, changing box and slide for ditto, £3 10s., or separate. Can be seen and tested at any time.—Ball, 5, Lucas Terrace, Wellesley Road, Leytonstone Road, Leytonstone.

High-class whole-plate outfit, new last autumn, condition as new, cost £16, price £10. Full particulars from No. 368, office of this paper, 1, Creed Lane, E.C.

Stereoscopic Apparatus. — Stereoscopic Company's Artist's twin-lens hand-camera, 5 by 4, perfect condition, three extra double backs, leather case, price list £18 11s. 6d., take £10, or Fallowfield hand-camera in part exchange; approval; deposit.—No. 366, office of this paper, 1, Creed Lane, E.C.

Sundries.—Valuable bargain. Grand rich tone violin for sale, rich ringing tone and in perfect condition, complete with fully-lined case and excellent bow, 16s. 6d. the whole; absolutely certain to give highest satisfaction; approval willingly; a lot of music given free.—Mrs. Graham, College Buildings, Ipswich.

Will exchange 20 c.-p. dynamo, hand power, for quarter-plate W.A. lens by good maker; also 35 c.-p. dynamo for steam or gas power, for whole-plate camera and slides (no lens).—Geo. Waller, 3, Middlegate Street, Great Yarmouth.

WANTED.

Enlarging Apparatus.—Wanted, Cantilever enlarging apparatus, quarter-plate size, Indian pattern.—H. Thacker, 6, Penlee Villas, Devonport.

Lenses, etc.—Wanted, quarter-plate rapid rectilinear lens, 5 or 5½ in. focus, good maker, cheap.—12, Archer Street, Notting Hill, W.

Wanted, Ross' No. 2 P.S. lens, or Wray's 4 in. focus, W.A.R., cheap.—Richardson, architect, Wakefield.

Wanted, good maker's 5 by 4 R.R. lens, 5 to 6 in. focus, iris diaphragms.—Wall, 26, Mount View Road, N. London.

Wanted, quarter wide angle, good make.—James, 13, Laitwood Terrace, Balham, S.W.

Shutter. — Thornton-Pickard shutter, time and instantaneous, with speed indicator. Particulars and price to Rev. P. Denn, Wallsall.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Hand Cameras.—No. 2 Kodak, fitted rapid rectilinear lens, carries 100 films, instantaneous shutter, solid leather case, thorough good condition, 70s.; No. 1 Kodak, best order, rapid rectilinear lens, shutter, etc., carries 100 films, in leather case, 37s. 6d.; "Ideal," by Adams, rapid rectilinear lens, time and instantaneous shutter, two finders, carries twelve quarter-plates, covered leather, £4 4s.; Radial hand-camera, by Marion, fitted Soho R.R. lens, shutter, focussing, carries twelve quarter-plates, in Marion's leather, as new, £5 16s. 6d.; "C" Daylight Kodak, rectilinear lens, time and instantaneous shutter, two finders, focussing, covered leather, carries forty-eight 5 by 4 films, as new, 75s.; Adams' Otto hand-camera, good lens, two finders, shutter, etc., carries twelve quarter-plates, covered leather, as new, 35s.; "A" Daylight Kodak, as new, good lens, shutter, finder, covered leather, as new, 25s.; Griffith hand-camera, carries six ¼-plates, covered leather cloth, good lens, shutter, finder, etc., quite new, 15s.; Houghton's Automatic Hand-camera, guaranteed as new rapid rectilinear, rotating stops, Thornton-Pickard shutter, carries twelve quarter-plates, fine camera, £4 10s.; Optimus Minimus hand-camera, quarter-plate, for twelve plates, Optimus Euryscope lens, roller blind shutter, two finders, bag changing, covered morocco, finest condition, £4 17s 6d.; Talmer hand-camera, carries twelve quarter-plates, fine portrait or view lens, shutter, finder, bag changing, etc., finest condition, 47s. 6d.; Optimus Magazine, very finest order, Optimus rapid rectilinear lens, carries twelve quarter-plates, roller blind, shutter, focussing adjustment, £5 5s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Dallmeyer's 2 B patent portrait lens, finest condition, Waterhouse stops, rack focussing, take £6 17s. 6d., cost £13 13s.; Optimus portable symmetrical, size 9 by 7, rotating stops, covers well, works *f*/11, as new, 65s.; 9 by 7 Optimus rapid Euryscope lens, Waterhouse stops, moveable hood, grand definition, as new, £5 5s.; whole-plate portrait lens, Waterhouse stops, rack focussing, covers well, as new, 65s.; 8 by 5 Ross' rapid symmetrical lens, iris stops, grand definition, quite new, £4 7s. 6d.; 7 by 5 Panorthoscopic lenses by Laverne (Clement and Gilmer), Waterhouse stops, loose hood, latest pattern, as new, 50s.; Shews No. 2 rapid wide-angle lens, rotating stops, as new, warranted, £2 7s. 6d.; half-plate Lancaster's rectigraph lens, thorough order, covers well, Waterhouse stops, take 32s. 6d.; half-plate Lancaster Instantograph lenses, iris stops, and instantaneous shutter, 15s.; Optimus quarter-plate portrait lens, rack focussing, Waterhouse stops, quite new, 21s.; 5 by 4 Optimus rapid rectilinear, by Perken, Son, and Rayment, Waterhouse stops, 27s. 6d.; Swift 5 by 4 wide-angle rectilinear, 5 in. focus, rotating stops, 32s. 6d.; Ross's portrait lens, c.-d.-v., rack focussing, Waterhouse stops, grand definition, £3. All above lenses are warranted as described.—On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street. City (late Goy's Medium). Every description of apparatus bought, sold, or taken in exchange.

Bargains in Cameras and Sets.—10 by 8 camera fitted all latest improvements, back and front extension, for wide-angle pictures, leather bellows, reversing back, rising and falling front, two double slides, grand condition, take £6 10s. lot; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; whole-plate Spanish mahogany camera, by Mason, Glasgow, leather bellows, single extension, wide angle movement, rising, falling and cross fronts, reversing, three double slides, changing box for twelve plates, fine Euryscope lens, Waterhouse stops, Newman shutter and folding stand, grand set, £7 17s. 6d.; Optimus portable A.R. camera, wide-angle movement, leather bellows, rising and falling front, swing and reversing back, fitted Optimus rapid rectilinear lens, Waterhouse stops, Thornton-Pickard shutter, double dark-slide, folding stand and case, £5 5s.; Rouch patent half-plate camera, double extension leather bellows, rising front, swing and reversing back, fitted Rouch 8 by 5 rapid doublet lens, Waterhouse stops, three double slides, three-fold stand and case, as new, £5 17s. 6d.; Morley's 7½ by 5 patent camera, double extension, leather bellows, rising and panel front, swing back, three double slides, Morley's 8 by 5 rapid rectilinear lens, Waterhouse stops, folding tripod and case, £6 12s. 6d.; half-plate 1892 instanto. camera, all latest improvements, double extension, leather bellows, etc., double slide, quarter carrier, very fine rapid rectilinear lens, and folding stand, set complete, 75s.; Optimus ¼-plate portable A. R. camera, all latest improvements, three double book slides, Optimus rapid rectilinear lens, Waterhouse stops, shutter, sliding tripod, and waterproof stiff cameras, case quite new, £4 17s. 6d.; quarter-plate Le Merveilleux set, by Lancaster, complete, 15s.; quarter-plate extending camera, best order, good lens, two double book-form slides, and folding stand, 17s. 6d. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Magic Lanterns and Slides. — Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tylor, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

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Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps. Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; scientifically constructed, not commercial; several whole and half plate for sale, cheap.

The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Science Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

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Fine Triple Lantern; telescopic draw tubes, four set of high-class lenses, £38 10s., worth nearly double. Given away.

Special Triple; mahogany, entire solid brass fronts, £12 12s.; a really good lantern, unequalled.

Elegant Mahogany Biunial; brass fronts, £7 10s.; blow-through safety jets, 6s. 6d. and 8s. 6d.; mixed gas jet, 12s. 6d.; Malden double dissolving tap, 12s. 6d.; regulators, 12s. 6d.; gauges, 12s. 6d.; grand effects; particulars free, before purchasing. Send for Mr. Hughes's grandly illustrated catalogue, over 180 finely cut original wood engravings, price 6d., postage 3d.; separate list of 60,000 slides, price 6d., postage 3d.; pamphlets free; second-hand lists free of bargains.—W. C. HUGHES, Brewster House, Mortimer Road, Kingsland, London, N. Fifty slides, all nicely coloured, on loan for 3s., in special despatch boxes.

WILL some reader share "AMATEUR PHOTOGRAPHER" with Trix, 167, Cleethorpe Road, Grimsby?

WANTED to Hire a good Hand-camera for a month; state charge.—No. 365, office of this paper, 1, Creed Lane, E.C.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

The Amateur Photographer

Telephone No 1645

Telegraphic Address: VINEY, LONDON

Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 435. Vol XVII] FRIDAY, FEBRUARY 3, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

Our Views.—Moonlight Pictures—Ether Explosion; where to Store it—How to Fix a Stopper—The Explanation—Jumping Stoppers—A Chemist's Trade Exhibition—Chemists as Dealers—Poisonous Chemicals—The "Free Portrait" Dodge—The Cardiff Phot. Soc. and Chicago—The Dublin Evening Telegraph and Photography—The Weather and Photography—London Soc. Survey—Chinamen and Photography—Fading of Prints, the Fault of the Operator—The New Club—A Caution—Shipman of Ilford—The Louth Exhibition—Photography at Chicago—Our Charity Lantern.

Letters—The Tunbridge Wells Exhibition (Cassingham)—Oil Lanterns and Screens (Leicester)—Eureka (Chapple)—Smart Work (Martin and Co.)—Amidol (Isis)—A Lantern Query (Ethoxo)—Dealers *v.* Prize Competition (Frank)—Toning P.O.P. (Mason)—Exhibition Rules (Spurgeon)—An Anachronism (Davison).

Articles.—The A B C of the Lantern—Winter Photography (Hodges)—The Lantern-Slide and its Relation to Art (Newton)—Collotype at Messrs. Morgan and Kidd's.

Our Lantern Screen.—Our Dissolving Views—Society Lantern Nights and some Suggestions hereon—A Use for a Glazier's Diamond (Perkins.)

Lantern Novelties.—The Sershall Binder—The Unique Lecturer's Reading Lamp.

Monthly Lantern-Slide Competition.

Exhibition.—Louth.

Apparatus.—The Zoka Hand Camera—The Reliable View Finder

Societies' Notes.

Societies' Meetings.—Birmingham—Bristol—City of London—East London—Fairfield—Hackney—Halifax—Liverpool A. P. A. North Middlesex—Nayland—Newcastle—Plymouth—Pudsey—Putney—Richmond—Rochester—Tunbridge Wells—West London—West Surrey—Woolwich Polytechnic.

EDITORIAL DEPARTMENT—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Lantern-Slide Competition, No. 44.—Latest day, February 11th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, February 24th, 1893.)

A correspondent kindly sends us a note on "Moonlight Pictures," and states for the benefit of those amongst our readers who are anxious to try these that he has found that with an R. R. working at *f*/10, and Ilford ordinary plates, the exposure was 3½ hours with a full and very brilliant moon. He also suggests that one of the peculiarities of moonlight is the intensely black shadows, which, however, from the long exposure are not correctly rendered, in consequence of the shifting of the same, due to the motion of the moon. Quite so. Up to the present we have not seen a correct representation of moonlight.

* * *

Ether is again the cause of a fatality. It seems that a Bermondsey man—a photographic enameller—kept a bottle of ether on the top shelf of a cupboard in his sitting-room, and that as he and his wife were sitting quietly in the evening a slight hissing noise was heard. His wife went to the cupboard and the bottle of ether exploded. Although a lamp, which was burning, was immediately turned out, the fumes ignited at a fire, and the man's wife was burnt so seriously as to cause her death.

* * *

Now that the fatal accident has taken place, it is, of course, easy to make suggestions as to its prevention. It is curious to note how careless those handling such dangerous explosives as ether may become through familiarity. No one, it may be presumed, who is cognisant of the easily volatile nature of ether, would ever store it at the top of a cupboard or room, where obviously a far greater heat must exist than at the bottom. Yet so it was in this case.

* * *

Probably many of our readers may have noticed when working in small and ill-ventilated dark-rooms, particularly if smoking is indulged in, how close and hot the atmosphere gets, and solutions kept in stoppered bottles will begin to splutter and fizz slightly, due to the air in the bottle expanding and escaping round the stopper. Certainly the moral is to store all volatile liquids in as cool and equable a place as possible.

* * *

We have often noticed too how careless some amateurs are in making solutions with hot-water. An instance of this was brought prominently to our notice this week. An amateur desired to make a solution of oxalate of potash, and the salt being put into a stoppered bottle, boiling water was poured in up to a certain mark, the stopper was replaced, the bottle well shaken, and then left and something else attended to. The solution was not required till cold, and on trying to remove the stopper it was found fixed as firmly as though part of the bottle itself.

THE explanation is not, of course, far to seek. The air enclosed in the bottle when the solution was made being heated and driven out, and the stopper being firmly screwed in, on cooling of the solution the outside air was pressing on the stopper with far greater force than that exerted by the enclosed air, and that stopper refused to budge till the bottle was set in front of the fire to warm.

* * *

A SIMILAR difficulty is met with if the dark-room is allowed to get close and stuffy, and stoppers "jump," and then finally settle down again. On cooling, the said stoppers have a great objection to come out, and some force and even heat may be necessary to remove them.

* * *

A CHEMISTS, Druggists and Allied Trades' Exhibition will be held at the Royal Agricultural Hall, Islington, from April 22 to 29th, and a section will be devoted to photographic materials and chemicals. Mr. John Black, of 2, Newcastle Street, Strand, W.C., is the Hon. Secretary, from whom full particulars may be obtained.

* * *

CHEMISTS, especially in country and provincial districts, are fast becoming the photographic dealers, and certainly they should take up that position. In the first place there are certain photographic chemicals which only a chemist has the right to supply excepting the wholesale trade. Then again, a chemist has presumably had some little scientific training, and should he venture himself to dabble in photography he stands perhaps a better chance of mastering the technical difficulties which always beset a beginner, than the average tyro, who is not quite so conversant with chemicals and suchlike messes.

* * *

TALKING of chemicals and poisonous chemicals reminds us that the Registrar-General's report just published shows that certain photographic chemicals were responsible for deaths as follows:—

Chemical.	Accidents.	Suicides.
Acetic acid	—	1
Ammonia	2	5
Bichromate of potash	1	1
Caustic soda	1	1
Copper sulphate	—	1
Cyanide of potassium	2	13
Hydrochloric acid	7	17
Mercury perchloride	1	—
Nitric acid	5	3
Oxalic acid	2	20
Sulphuric acid	5	8

This list is sufficiently comprehensive to warn our readers that many of the chemicals in common use in our dark-rooms may, if imbibed, lead to trouble, if not to coroners' inquests.

* * *

THE "free portrait" dodge is, as the Americans say, having its bottom knocked out in the police courts, and the chief offenders seem to have done a thriving business at Margate, Bournemouth, and Folkestone, and now have to answer for very curious business habits.

* * *

THE Cardiff Photographic Society are to send over to Chicago prints of the most interesting architectural and archæological features of Glamorganshire, this being an outcome of the photographic survey of that county. The local paper states that "so far as we are aware, Glamorganshire is the only county in the United Kingdom in which such an undertaking has been carried out with anything like a degree of completeness," and claims are made that our Welsh friends have done more even than the Warwickshire folk.

A CORRESPONDENT to the *Dublin Evening Telegraph* has been treating its readers to letters upon some photographic matters, and has laid the ghost of Mahatmas and spirit photographs. After referring to the wholesale production of process-illustrations of royal personages, he goes on to remark, "Photography cannot err."

* * *

THIS is "writ sarcastic," for he says:—"Nor is the reputation of our old friend the weather safe in the hands of the designing or artistic (?) photographer. To introduce a snow storm where none existed is simplicity itself. Block out the high lights on the negative, and sprinkle over it any very fine opaque powder. Each grain, by protecting from change, during printing on the sensitive paper, a little white spot, gives the effect of a snowflake. As to clouds and skies, perhaps the least said the better for one's equanimity. In many cases, in the average landscape, the sky is represented by a blank space which, undoubtedly from an artistic point of view, to mention no other, might be improved by an indication of atmosphere; but when, as we often do, see what appears to be a raging storm sweeping over a landscape otherwise reposing gracefully in a bath of sunshine, to say nothing of the clouds being occasionally upside down, we begin to think that after all photography, or at all events photographic productions, may err a trifle once in a while."

* * *

WE hear that a prominent London society will soon consider the advisability of undertaking a systematic survey of a certain district in London which is very rich in old and interesting houses, etc. This is as it should be. We should like to see a few more societies working in this direction.

* * *

AN American paper is responsible for the following:—

"While passing through 'Chinatown' the other day a Government detective noticed a Chinaman unloading a photographic apparatus from a wagon. It aroused the detective's suspicions and he followed up his man, and within a few days he discovered that it was part of a plan the Chinese have taken to avoid the Registration Act.

"The Act requires the Chinese to have their pictures taken and to file them at the office of the Internal Revenue Collector. The picture is pasted on the certificate of registration, and a Chinaman can be compelled to go before the Collector and be identified by his photograph if any question of his legal right to be in this country is raised.

"The Philadelphia Chinaman with the camera has been taking lessons in photography and in the art of using a preparation that will cause a photograph to grow dim within a year. When the Registration Act goes in force next May the Chinese of Philadelphia will have their artistic countryman photograph them, and after applying his fading preparation to the picture it will be filed with Collector Brooks. Within a year the picture will be so dim that it will be almost unrecognisable, and Collector Brooks will be unable to tell whether the man before him is the original of the photograph or a recent importation from China.

"It is said that the scheme has been transmitted to the Chinese in all the large cities of the country, and that photography is being zealously studied by the Celestial inhabitants."

* * *

WE reckon that some of our readers could give John some hints on making prints that would fade without the use of any special secret solution, for we had occasion to hunt through a lot of competition prints one day last week, and we were horrified to find that a gelatino-chloride print which took an award last February was almost unrecognisable, so much had it faded.

* * *

THIS is not as it should be, and is not the fault of the paper, but the operator. Several other prints, some on plain paper, also showed yellowness or fading. We shall soon have to withhold awards for twelve months to see whether prize prints will stand or not.

We have had numerous enquiries as to the new club, and must take this opportunity of stating that at present the promoters do not feel at liberty to lay any definite proposal before the photographic public. Although we hope within the next week or two to enter fully into the scheme, we may state that the main ideas are:—(1) A central and permanent home; (2) all interested in photography shall be eligible for membership; and (3) a low subscription. The idea has been so well received both by existing institutions and all the leading men in photography, that it promises to be a sound affair.

* * *

Mr. John Salt, of 14, New Arcade, Sunderland, writes as follows:—"Caution to my brother photographers. A person about thirty years of age called on me and said he was an operator, and was dying for want. I fed him and gave him work to do, for which I paid him on last Saturday. After, he put his hand in the till, and stole other things. Should he call on you, he wore spectacles, a light moustache, white front, black pilot top coat, blue serge suit, gives the name William Morris. If he should call, please send me a telegram."

* * *

We have received yet another warning with regard to the Sale and Exchange column, and our readers are warned that a Mr. Shipman, who has not satisfied those with whom he has had dealings in the past, is now attempting to carry on business under the name Douglas Nicholls, Wilton Road, Ilford. Although we have refused and shall still refuse any advertisements from this man, we again strongly urge our readers to insist on the use of the deposit system. We believe that beyond the Britannia Works Company there is not any other person or firm in the photographic trade at Ilford.

* * *

Our good friends at Louth have set an example to us Londoners. The local photographic society gave a free exhibition of photographs, and were ably supported by the best workers in England, 900 prints in all being on show. No medals were awarded, and the exhibition was "not instituted as a means of scattering just so many distinctions, but as a populariser of photography and as an incentive to the highest class of artistic work." No less than 2,230 visitors examined with great interest the collection of prints during the very short period of 12½ hours. We give elsewhere a brief note on the exhibitors.

* * *

We have received the following correspondence from Sir H. Trueman Wood, on photographing at Chicago:—

World's Columbian Exposition,
Department of Foreign Affairs,
Walter Fearn, Chief.
Chicago, U.S.A., January 14, 1893.

Sir Henry Trueman Wood,
Royal Commission of Great Britain
for the World's Columbian Exposition,

Dear Sir Henry,—Replying to your letter of November 23rd, receipt of which was acknowledged December 12th, I have now to enclose a copy of a communication, dated January 11th, which I have just received from the secretary of the Ways and Means Committee, and which gives the information you desire.—Faithfully yours, (Signed) Walker Fearn.

Office of the Ways and Means Committee,
(R) Chicago, January 11, 1893.

To the Honoured Walker Fearn, Chief, Foreign Affairs.

Dear Sir,—In reply to your communication of December 12th, will say that same has been considered by the Ways and Means Committee, and I am instructed to inform you that at present no one is permitted upon the grounds to take photographs, except the Official Photographer of the Exposition, and such persons as may care to use hand-cameras which are fitted with single lenses, and take pictures upon a plate not to exceed 4 in. by 5 in., and provided that they shall pay to the Exposition the sum of 2 dols. per day for said privileges.

The Exposition proposes to operate under this organisation until the first of May, and it is not likely that it may be continued during the Exposition.

The Official Photographer will be very glad to take pictures of such views as he may be requested by outside parties. These parties, of course, to pay for same at uniform rates which have been established.—Very respectfully,

(Signed) S. A. Crawford, Secretary.

* * *

Some years back Messrs. Perken, Son, and Rayment placed at the disposal of the Editor of the Amateur Photographer a handsome biunial lantern, which might be loaned to any of our readers for charitable purposes. In many cases it was found that it could not be used, on account of the necessity of using gas, as it was not fitted for oil lamps. Messrs. Perken, Son, and Rayment have now, however, given us two lanterns in place of the biunial, which may be used for oil or limelight.

We shall be glad to hear from any of our readers who may wish to borrow these lanterns. The only conditions for the loan of the same are (1) that they shall be used for charitable purposes, (2) that they shall not be loaned to photographic societies. If those desiring to borrow one of these lanterns will, at the time of application, inform us whether they intend working with the lime or oil lamp, we will send them out properly fitted up. There are no booking fees, and the borrower will merely have to pay carriage both ways.

We are quite sure all our readers will appreciate the kindness of Messrs. Perken, Son, and Rayment, and these handsome lanterns, with a set of our lantern slides, which we also loan free for charitable purposes, will, we hope, enliven many dull nights during the season.

Letters to the Editor.

THE TUNBRIDGE WELLS EXHIBITION.

Sir,—No doubt the mysterious action of the judges *re* withholding the *whole* of the medals at the late Tunbridge Wells Exhibition, through alleged insufficient merit, is fresh in the minds of your readers. I say mysterious, for such it was, as just previous to the exhibition two of the members had gained awards, one a *silver* medal, in an open-to-all-England competition, yet these self-same pictures being exhibited at Tunbridge Wells were not worthy of recognition. Now, to crown it, another member of our society has just gained first place in the "Optimus Competition." I have not heard of the number of competitors, but from the fact of there being 100 guineas offered as prizes, I presume the number would be large, no doubt including some of our best *medal takers*. So, from the above facts, I think the work of the Tunbridge Wells Photographic Society (at any rate, some of it) cannot be quite such "abominable rubbish" as our judges appear to wish the outside public to believe.

Trusting you will find space for the above in your next issue, I am, etc., W. B. Cassingham.

* * * *

OIL LANTERNS AND SCREENS.

Sir,—When buying an oil lantern one does not stop to think what it will cost before the outfit is complete. I have just purchased a lantern, and find that I shall have to pay from fifteen to twenty shillings for a screen if I have the best, which is necessary when the oil luminant is used, and I think here is one reason why the oil lantern has got a bad name, for most workers will not care to give as much for the screen as for the lantern. A cheap calico sheet is bought, and the user concludes that there is nothing for it but to adopt the limelight.

If a thin white oil-cloth could be produced I am sure it would meet a ready sale. A maker of this kind of material informs me that it could be made up to six or eight feet wide, but is afraid that would be too narrow. As it is impossible to get a well-lit picture even six feet wide (I am speaking of oil), I am sure this maker need not be afraid.

If you will publish this letter, perhaps others will give their opinion.

Screens made of the material mentioned would cost less than half the amount usually charged.—Yours, etc., J. Leicester.

EUREKA.

SIR,—For some years I have been in the habit of using gelatino-chloride of silver paper. For a certain class of subjects I prefer a glazed surface to the prints (this may be inartistic, but I like it, and I suppose the artistic is largely a matter of taste). I have no difficulty in getting the highly-glazed surface, but in keeping it.

I have tried many kinds of mountants without success. Backing the prints is a little troublesome, and not altogether effective. A perfect backing paper has yet to be made.

I am glad to say I have found what I have been long seeking; a mountant that is really all that the makers say it is. It does not injure the face of the most highly-glazed print, nor cockle the thinnest mount. No backing is required, and the mountant is always ready for use.

I can confidently recommend it to fellow amateurs seeking for a perfect mountant. It is prepared by W. Butcher and Son, of Blackheath.—I am, yours, etc., JON. CHAPPLE.

* * * *

SMART WORK.

SIR,—We have thought it might interest yourself and your readers if we sent examples of a recent application of photography to the festivities of the season.

An artist friend or brother of the house where a dance is to be given, supplies a pen-and-ink sketch about 6 by 4 to reach us on the morning of a given day, and on the following morning 50 or 100 copies reduced to programme size are in his hands for attaching to the dance list.

Though such orders are executed in so short a time, it is obviously better to allow forty-eight than twenty-four hours in case of postal delays.—Yours, etc., J. MARTIN AND CO.

Park Villas, New Southgate, N.

[The sample prints sent speak well for the quality of the work, and the idea is decidedly good.—EDITOR.]

* * * *

AMIDOL.

SIR,—I think it somewhat a pity that the moment any new developer is introduced it should find itself at the mercy of a host of experimentalists who before long succeed in transforming it out of all knowledge, and in most cases ruining it in the estimation of those who use their perverted formulæ.

Why, for instance, insist on adding alkali to a solution of which the chief merit is that it will develop well without it? Indeed, the makers originally stated that it would fail if so used. So it would, but the experimentalist crams it with an enormous amount of bromide to enable it to stand this unnecessary addition.

Surely the inventors and producers of most commercial articles of the sort know their business best. For lantern-slides with black tones, Amidol, using the makers' formula, is simply perfection.

I venture to prophesy that if equally good for negatives, Amidol will take closer rank with pyro than any reagent yet discovered. *Floreat!*—Yours truly, ISIS.

* * * *

A LANTERN QUERY.

SIR,—In Mr. Noakes' very practical paper on "Lime-light Lanterns," in your issue of January 6th, page 19, he states, "The usual flexible tube will not convey gas from one cylinder to the other, even if there were 120 atmospheres in one, and only 1 in the other."

Would he kindly explain why, unless the reason be that the pressure from the 120-atmosphere cylinder would blow off the connecting tube? I should imagine that, following the ordinary laws of the different gases, the two gases *must* mix.

I should also feel obliged if Mr. Noakes would give his opinion as to the safety, or otherwise, of the "Ethoxo" lime-light. I have used it up to this with gas-bag, and am able to get a far more brilliant light than with coal-gas. But as I intend to use a cylinder in future, I am anxious to know from some one practically conversant with this mode of illumination, whether it is considered safe when worked from a cylinder. Anyone who has ever used it would be sorry to go back to coal-gas.—Faithfully yours, ETHOXO.

* * * *

DEALERS *v.* PRIZE COMPETITIONS.

SIR,—"Enthousiaste" and "Arthur Seat" have misread my letter, or, at least, the meaning of it. If dealers *are* allowed to compete, should they be allowed year after year to carry off medals which in common fairness should go to others who have never won a prize? I do not mean those whose work is too bad, but there are plenty whose work is quite equal to the prize-winner's. When a medal has been won, the fortunate one should be debarred from getting one next year. I have often heard judges say, "I don't know really which to award the medal to, but as this one has got a medal we had better give him another!" And *this* is fairness. Whilst speaking about medals, why are not some useful things given, to be chosen by the winner? For a first prize give a medal and for other awards something useful. The dealer I alluded to last week has no end of medals, but of what use are they? Only to remind him that he has won what belong to another—at least, in my humble opinion.—Yours, etc., FRANK.

* * * *

TONING P. O. P.

SIR,—I am afraid I cannot give Mr. Roberts any fuller information about the toning bath for gelatino-chloride prints than what has already appeared in your columns. I would refer him to pages 225, 300, 322, 323, 340, 364 in your last volume.

On page 340 he will find the essence of my experience with this bath. I have nothing new to say with regard to it. I am still working *the same bath* (eight or nine months old now), in the same manner, and get the same results; in fact, I have no trouble at all with it. The great point is to have *pure* chemicals. I use Johnson's gold chloride, and find it be the best and also the cheapest, and I take care not to use sulphocyanide which has gone yellow or sloppy. Impure chemicals will soon cause the bath to go wrong, and also give the sediment complained of.

As to washing prints before toning, it is quite optional; but then I worked out this particular bath for the express purpose of doing away with this long, tedious, and, as I consider it, delicate operation.

Combined toning and fixing baths are rather too costly in practice, though very nice in theory, leaving aside the great risk of sulphur toning, and consequently early fading of your prints. My bath is simple, there is no risk of sulphur toning; you get your prints perfectly fixed (a great point as regards permanence), and all with as little trouble as in using a combined bath.

I shall be glad to have Mr. Roberts' experience after another trial. I enclose a few prints for the Editor's inspection, and he will, no doubt, report upon the tone, etc.

I see on page 461 you state both Liesegang and Hughes recommend the use of salt in the sulpho-cyanide toning bath. Truly, there is "nothing new under the sun"! My first experience with salt in combination with toning was in the last wash water with Mucklow's albumenised paper. I then tried a bath as follows:—

Borax	30 gr.
Water	8 oz.
Dissolve, and add:—	
Sodium chloride	90 gr.
Gold chloride	1 ,,

In this bath I have toned hundreds of albumen and plain paper prints without any previous washing.

I enclose a print toned in the above bath over three years ago. It was from the experience gained with this bath that I evolved my later one for gelatino-chloride prints. You see, Mr. Editor, "lazy folk are always scheming folk"!

Now there is the history of Mason's toning bath, and I was not before aware that salt had ever been used *in* the toning bath.—Yours, etc., EDWARD MASON.

[The prints sent by Mr. Mason are very satisfactory in colour. We hope to be able to commence shortly a series of articles on toning in general.—ED.]

* * * *

EXHIBITION RULES.

SIR,—Recent discussions, both in the Press and out, have shown how much reform is needed in the rules of photographic exhibitions. Photographers of all schools are agreed that the old system of division into "classes," and the separation of amateurs and professionals, are both undesirable and unnecessary. Yet prospectus after prospectus comes to hand, in which, with but slight variations, the same antiquated rules regularly reappear. In only one case, so far as I have noticed, have the new principles been embodied, viz., that of the Fillebrook Athenæum Exhibition, with which I have the honour of being connected. Though we stand alone, I am convinced we are on the right track. One prominent worker writes, "I note with very great pleasure the way you have framed your rules. . . It is an experiment which I feel sure has the approval of those men who desire an end put to some of the present abuses in photography. . . . I should like to exhibit for the first time in an open competition, bar the Pall Mall show." Another well-known exhibitor heartily congratulates us "upon the eminently intelligent and up-to-date non-classification method" we have adopted, and adds, "It is everywhere commented upon with approval." These and many other similar letters lead us to expect a most successful show. One is inclined to wonder why other exhibition committees do not adopt similar conditions. It would be interesting to learn why they are so reluctant to relinquish the old traditions.—I am, yours, etc., JOSEPH W. SPURGEON.

* * * *

AN ANACHRONISM.

SIR,—The little discussion between Mr. De Birch and Mr. Huggins as to the reasonableness of historical photographs will, I trust, appear to them of sufficient general interest to excuse others participating.

I feel inclined to agree entirely with Mr. De Birch. To absolutely

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Derby—**RICHARD KEENE**, All Saints'.
Dover—**MARTIN JACOLETTE**, North Brook House.
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Great Yarmouth—**EDWIN J. PRATT**, 165, King Street.
Hull—**C. P. GIBSON**, 16, Whitefriar Gate.
Jersey—**J. RENOUF, Junr.**, 45, Don Street.
Leeds—**REYNOLDS & BRANSON**, 14, Commercial Street.
Liverpool—**J. J. ATKINSON**, 37, Manchester St.
Manchester—**J. T. CHAPMAN**, 7, Albert Square.
Newcastle—**F. K. HURMAN & CO.**, 2, St. Nicholas Buildings.
Newport (Mon.)—**TOWNSEND CYCLE CO., LD.**, 113, Commercial Street.
Norwich—**A. E. COE**, 32, London Street.
Sheffield—**J. PRESTON**, 2, High Street.

OTHER TOWNS IN FUTURE ADVERTISEMENTS.

deny the photographer any power or right to treat historical subjects is to sweep away all dramatic representation as irrational, anachronistic, and inartistic. Mr. Huggins will surely find a difficulty in satisfactorily defining imagination in such a way as to exclude it absolutely from the domain of the photographer without almost equally touching the work of other graphic artists.

It is needless to say that in these subjects the photographer is limited more narrowly than the painter, but it is only a difference of degree.

The process to the photographer must be a very costly one, but that it may be fairly successful has been very well proved.

My own feeling is that both painter and photographer—particularly the photographer—may be better employed than in illustrating historical literature, but that is hardly the question at issue, and is a statement that needs qualifications too ample for this occasion.—Yours, etc., George Davison.

* * * *

THE BENEVOLENT.

Sir,—Will you allow me space to state that although the committee of the Benevolent arranged, at the last meeting reported, to hold the annual meeting on February 3rd, it has been found impracticable to do so. The annual meeting will therefore not be held till Monday, February 20th. The usual notices will be sent to all subscribers.—Yours, etc., H. Snowden Ward (Hon. Sec.)

Memorial Hall, E.C.

Apparatus.

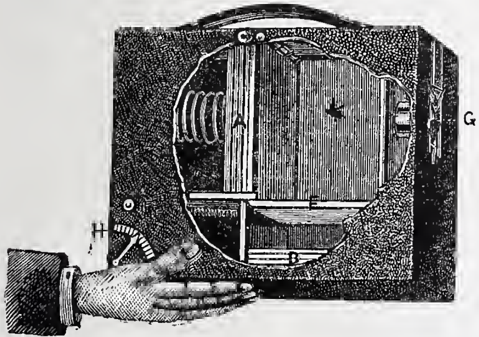
THE "RELIABLE" FINDERS.

These are introduced by Mr. Henry Jones, of 11, Albion Street, Coventry, and are quite efficient and absurdly cheap, from 1s. 3d. upwards. Three shapes are made, and the adjustment of the amount of subject on the ground-glass can easily be effected by the use of little strips of black paper should the size of the ground-glass not exactly coincide with the proportions of the plate.

THE ZOKA HAND-CAMERA.

The Artistic Photographic Co., of 178, Charing Cross Road, have submitted to us one of the above hand-cameras which, although cheap, is of really good value.

The camera is a neat leather-covered box measuring 9½ by 6½ by 5 in., and is fitted with a single achromatic lens (G) working at *f*/11, and a rebounding drop shutter. The unexposed plates (A) are placed in sheaths and are pressed up to register by a coiled spring behind; to release the plate the automatic release (C) is pulled, when a special escapement releases a projecting nib on the top of the sheath and the exposed plate falls on to the sliding door (F), which is then drawn back by the little knob seen over the indicator (H), and allows the plate to drop into a special tray (B) at the bottom of the camera, which also prevents them from shaking about, and the same movement places the next plate in focus ready for exposure.



This camera is the invention of Messrs. Spalding and Hawkins, and is offered at the extremely low price of 12s. 6d. The movements required to change the plate are extremely simple, and, in our opinion, not likely to get out of order; and it is certainly more than a toy, and capable of turning out satisfactory results.

THE "LOTHIAN" RAPID-SOLUTION JAR.

In our notice of this useful little idea of Mr. Baird's, we omitted to state that the prices, including postage, are as follows:—

To contain	1lb.	2lb.	6lb.
Price	9d.	1s.	1s. 9d. each.
Post free	1s.	1s. 3d.	2s. 2d. „

Winter Photography,

AND

HOW TO PHOTOGRAPH SNOW AND FROST SCENES.

By John A. Hodges.

CHAPTER II.

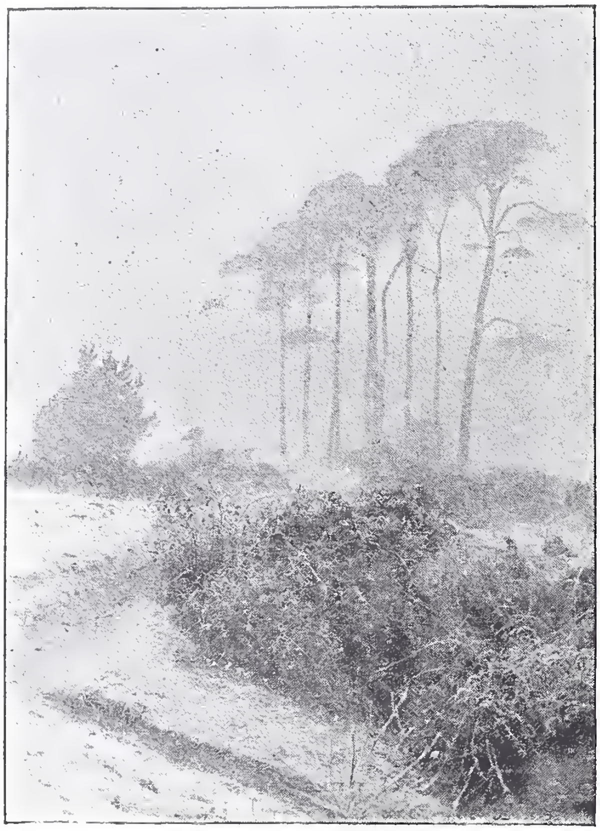
(*Continued from page* 487, *Dec. 30th*, 1892.)

Since last writing upon this subject some fortnight since, the prediction then expressed that opportunities for securing frost and snow pictures would soon occur, has been amply verified, and at the moment of writing the snow lies thickly upon the ground, and so far as meteorological indications can be relied upon, there would seem to be every probability of these opportunities continuing for some time to come.

To resume the subject at the point where I left it—namely, the selection of the plate—I would recommend the tyro in such work (and of course it will we understood that it is for him that I am writing) to eschew the extremely rapid plates now obtainable, and to choose in preference one of medium rapidity, such, for instance, as the "Castle" or Wratton's ordinary. There is seldom in such work any necessity for very short exposures, unless subjects, for instance, like skating scenes are attempted, when the rapidly moving figures of the skaters will require a quick plate and a brief exposure; but such subjects I am not, for the moment, considering. I have tried very rapid plates, and I have tried the slower ones, and have always secured the best negatives upon the latter; indeed, some of my most successful snow pictures have been taken on a plate not now obtainable, *i.e.*, Fry's slow landscape, which registered about 13 deg. on Warnerke's sensitometer. Of course, with such plates the exposure will necessarily be long.

From plate to exposure is but a step, although it is a far easier matter to give useful advice upon the former than the latter branch of the subject. It is admittedly difficult to suggest the proper exposure for any particular view in summer, but in winter the difficulties are greatly increased by the fact that the actinic value of the light is such a constantly varying factor in the calculation. I think, therefore, what I have to say upon this part of the subject may be presented most usefully to the reader in the shape of short notes based upon actual personal experience.

My own method of working, which I have already partly indicated, is to use a slow plate, give a full exposure, and develop slowly with a weak developer. The actual duration of exposure will, of course, depend largely upon the nature of the subject itself, and the quality of the light. The seeker after snow and frost studies should not be deterred from his quest by the presence of fog or mist, for under such apparently adverse conditions most beautiful effects may sometimes be secured. As an instance of what is possible under such circumstances, I may refer the reader to the reproduction of "Drear December" which accompanies this article. The subject of the picture is one well known to most Londoners, and is, in fact, the well-known clump of firs standing on a bold bluff of broken gorse-covered ground on Hampstead Heath, and it owes whatever pictorial merit it may possess to the atmospheric conditions under which it was secured. Although clear when leaving home, by the time the Heath was reached a dense yellow fog had set in, apparently rendering photographic operations an impossibility. I thought, however, if the weird effect of the stately trees standing sentinel-like upon the summit of the heath, their shadowy forms looking almost spectral through the mist, could by any possibility be reproduced, the effort would be well rewarded. After setting up the camera and arranging the picture, the fog became, alas! even denser than before. There was nothing, therefore, to do but wait; and wait I did in the rimy frost for more than an hour until the fog slightly lifted, when the outlines of the firs were just visible from where I stood by the camera. I removed the cap and gave two minutes' exposure with a lens aperture of *f*/16. Following my usual procedure in such cases, I mixed a developer as follows: pyro, 20 minims; bromide potas., 15 minims; ammonia, 10 minims; 10 per cent. solutions; water, 2 oz. I had used an England's film for the exposure, the rapidity of which was about 19 deg. Warnerke, and under this weak developer, although the exposure was very full, the image was slow in making its appearance. In about a quarter of an hour, without any further addition of accelerator, all detail was out: by that time, however, the developer had become considerably oxydised, and as the negative was still slightly lacking in density, I mixed up fresh solution as before, but doubled the quantity of pyro. Under the action of the fresh solution sufficient density was easily secured, and the print from the resulting negative was far from unsatisfactory, considering the extremely adverse conditions under which the negative was obtained.



DREAR DECEMBER.

My object in describing the production of this particular negative in detail is to demonstrate the fact that a slight amount of mist, or even fog, may help rather than hinder the photographer seeking for winter effects. The difference which a fog will make in the length of exposure may vary considerably—the soft white mist which merely produces an agreeable softness in middle-distance objects will add very little to its duration; but a yellow fog of the pea-soupy character, so familiar to Londoners and dwellers in towns, may render what to the uninitiated would seem an absurdly long exposure necessary. Under such conditions isochromatic plates would be specially valuable, and should certainly be used. Most people upon attempting to photograph snow and frost scenes for the first time, fail through under-exposing their plates, forgetting that which is the golden rule for successful negative making, "Expose for the shadows, and the lights will take care of themselves." To no branch of work is the saying more applicable than to that now under consideration, for by observing it not only shall we be more likely to preserve the delicate tones and half-tones of the snow, but the darker shadows in the picture will be far better rendered. In the majority of snow-landscapes we have usually very violent contrasts—masses of white opposed to black and heavy shadow—valuable material for effective picture making, if carefully and properly handled. In selecting the subject, great care must be taken to mass the materials as much as possible, and to avoid spottiness or patchiness, which, if several dark objects are allowed to obtrude themselves in the foreground, may very likely result. In a photograph of a snow scene dark objects are apt to look much darker than they in reality are, and this false rendering is one of the chief difficulties to be guarded against. Freshly fallen snow is more difficult to deal with than snow which has lain upon the ground and become discoloured by atmospheric influences or by a partial thaw; and a light fall, by not so completely obliterating the ordinary form of outdoor objects, will sometimes more usefully serve the photographer's purpose than will one of greater severity.

In regard to selection of subject a great deal might be written. As I have already remarked, that which under ordinary conditions is merely commonplace may become under the influence of freshly fallen snow eminently pictorial and artistic. Therefore, whether the reader be a dweller in town or in country, plenty of material for picture making will present itself. As in all landscape photography the introduction of water into the composition will be valuable and helpful. Wherever water can be found, whether it be by the frozen river or canal side, or by the icebound surface of pond or lake, there pictures will present themselves to those who know how to seek and where to find.

Very delightful and charming studies of hoar frost may sometimes be obtained, but many workers fail pictorially in their attempts to secure such by including too much of the subject upon the plate. For instance, a single branch of holly reproduced in nearly its natural size may be made to look far more pictorial than a representation of the entire bush. Much work of this kind, and some of it very beautiful, has been produced, but studies, artistically arranged, such as I have suggested, would form quite a novel field for winter work. The arrangement of the subject and the exposure would, of course, have to be done out of doors. It would probably be well to select and arrange the subject one day in such a position that it would not require to be disturbed, and allow King Frost to subsequently put his finishing touches; a rather dark background would greatly enhance the effect. For work of this kind a long-focus lens will be found most suitable, and it may be necessary to use rather small stops in order to obtain good definition.

In regard to printing photographs of snow or frost scenery, it is, perhaps, not necessary to say very much, but I would warn the reader against the incongruity which is often committed of reproducing such subjects in reds and browns. Such colours are totally unsuitable, and, however good in composition and technique the photograph may be, it can never fully convey to the mind the impression of cold. Platinum, carbon, or bromide are all very suitable printing processes for the purpose, and of the three perhaps bromide permits of the greatest latitude of treatment. With the soft negatives which sometimes result from the mode of working previously advocated, almost any desired effect can be obtained, but in order to preserve the purity of the black deposit, the ferrous-oxalate developer should be employed in preference to eikonogen or hydroquinone.

Our Lantern Screen

A MONTHLY SUPPLEMENT OF

"The Amateur Photographer."

No. 4. FEBRUARY 3, 1893.

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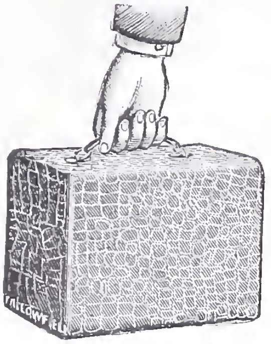

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DETECTIVE CAMERAS, 1891.

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Snow and Frost Scenes. Lists Free.

GRAYSTONE BIRD, PHOTOGRAPHER BATH.

OUR LANTERN SCREEN.

A Monthly Supplement to the "Amateur Photographer."

No. 4. FEBRUARY 3, 1893.

Our Dissolving Views.

We regret that illness has prevented Mr. D. W. Noakes sending us the third paper of his very practical series in time for this issue. But we trust that Mr. Noakes will soon be restored to health and able to let us have the article. We can ill spare so practical a writer on lantern matters.

* * *

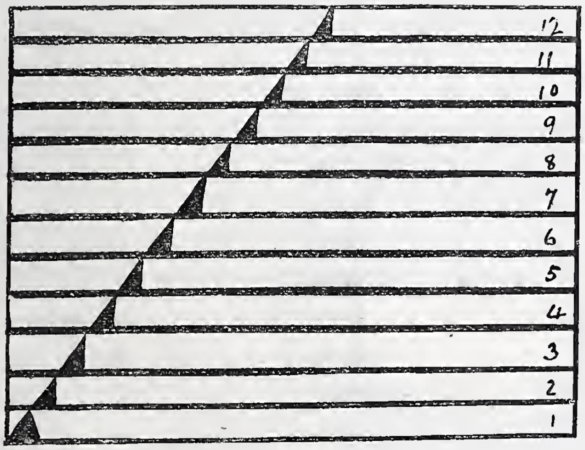
A tempting cherry awaits the bold and enthusiastic lantern worker or writer. A prize of ten guineas is offered by the *Journal of Education* for the best essay on the "Use of the Optical Lantern for Class Instruction." Full particulars will be found in the February issue of the journal, which is published by W. Rice, at 86, Fleet Street, E.C., price sixpence.

* * *

The lantern is destined to play an important part in class and technical teaching, and those who are so disposed may find some valuable hints on this subject in a little pamphlet, price sixpence, called the "Optical Lantern as an aid to Teaching," by C. H. Bothamley, issued by our publishers at 1, Creed Lane.

* * *

J. C. sends us the following suggestion for marking lantern slides which is new to us. The advantages claimed for it, and which seem reasonable, are, that it at once gives an idea if any slide is missing, as the continuity of the oblique line will be broken, and it also affords an easy way of marking the slides for insertion in the carrier. The objection is that of introducing a new method when the old one is fairly widely recognised.



* * *

Mr. Alex. Thomason, sends us the following particulars of the National Lantern Slide Exchange which is a good idea and worth support:—The object of the National Lantern Slide Exchange is to enable lanternists, and all others engaged in the work of the lantern, to obtain the use of other slides without the necessity and expense of purchasing or hiring. That each member deposit in the exchange not less than fifty good lantern slides, either in one set, or in several small ones, each set to be complete and perfect. Not more than five hymns and five mottoes will be accepted from one person. Skipping, slipping, and chromotropes counted as ordinary slides. Effects will be counted according to the number of slides. The readings to each set must also be deposited. That each member pay a small yearly subscription of 10s. 6d., which shall entitle him to a maximum of fifty slides per week. The carriage and cost of postage for slides must be paid by the member both way. Accounts for postage will be sent out every six months. All slides must be returned at the earliest convenience of the member, as only by this means can the circulation be maintained. A second set of slides will not be allowed to leave the Exchange until the member has returned those previously withdrawn. All slides sent out damaged will be so labelled, and should any slide be damaged when returned not so labelled, the same will be charged to the member. When a member wishes to withdraw his slides he may do so upon giving fourteen days' notice, or the manager will be prepared to dispose of the slides if the member should so wish. The duty of the manager will be to keep in good repair the binding of all slides deposited at the Exchange; pack and despatch all parcels of slides; provide safety boxes for their transmission; provide a list of all slides deposited at the Exchange; and conduct all correspondence. The address of the Exchange will be 20, Parsonage, Westleigh, Leigh, Lancs., under the management of Alex. Thomason, to whom all subscriptions are to be paid. Cheques crossed "Consolidated Bank, Ltd." Post office and postal orders made payable at Westleigh Post Office.

* * *

We are glad to note that our articles, "The A B C of the Lantern," seem to give satisfaction, and, according to the old phrase, "fulfil a long-felt want." We think they may at least show how useful the lantern may be made for technical and class instruction, and at the same time will give hints to would-be lecturers of new pastures and unbeaten tracks.

* * *

In all the experiments connected with light and many others, a black screen is an essential, and Mr. A. H. Baird, of 15, Lothian Street, Edinburgh, reminds us that he issues a special wall-map pattern screen, black one side and white the other, and at a very reasonable price. He also makes a speciality of scientific apparatus for use with the lantern.

Society Lantern Nights, and Some Suggestions thereon.

"Lantern evenings" are probably the most popular functions in connection with the ordinary routine of a photographic society's existence, and a good attendance of members and friends is the rule, and not the exception, upon such occasions. Now anyone who has been a visitor to many of these so-called "lantern shows" cannot fail to have noticed two things, first, the manner in which the show itself is conducted, and, secondly, the very indifferent quality of a large proportion of the slides exhibited. Presumably the object of holding such meetings is to afford instruction as well as amusement, and if this be conceded it would seem to indicate that some system of selection and rejection should be instituted, so that the audience may not have to undergo the infliction of sitting out the exhibition of a long series of indifferent slides. It might be objected, though we think few would take this view, that, every member being entitled to the privilege of having his slides exhibited—to enforce such a rule would give rise to dissatisfaction and ill-feeling. We do not, however, believe that the adoption of some such system as that suggested would lead to that result, for certainly no greater unkindness could be meted out to the producer of bad work than to exhibit the same in public. Unless it be as an example of what to avoid, its exhibition can serve no useful purpose either to the worker himself or to his fellow-members. The task of selection should not, we think, be in the hands of an individual, but should be entrusted to a committee of say three competent members, to be elected by the committee of the society. To those gentlemen all the slides intended for exhibition should be submitted, and their duty would be to eliminate from the collection all the hopelessly bad slides. We feel sure that the adoption of this plan would tend to enhance the educational value of society lantern shows, for it would tend to promote a competitive spirit among those who had perhaps hitherto produced only indifferent work, and the honour of having the slides exhibited would in itself be a stimulus to better work.

Let us now turn from the question of exhibiting inferior slides to the slides themselves, and the causes which lead to their production. Now, without in the least wishing to say a word against that invaluable instrument when intelligently used, we have not the slightest hesitation in expressing the opinion that the hand-camera is one of the most prolific causes of the production of bad lantern slides. The temptation to the novice to expose upon everything that presents itself, regardless of the light and the nature of the subject, necessarily leads to under-exposed plates, which, in conjunction with the unskilful and forced development which often follows, leads to the production of hard, under-exposed negatives, from which it would be difficult, if not impossible, to obtain good lantern slides. Our advice, then, to those whom we are addressing would be: pay attention to the quality of the negatives, do not attempt to make slides from those of the character which we have just indicated, and remember that it is better to exhibit one good slide than half a dozen indifferent or bad ones. But many beginners may truly plead, "It is all very well to tell us that our slides are bad. How are we to learn what constitutes perfect technique in this particular branch of work?" Now we would suggest that all photographic societies should possess a series of technically perfect lantern slides, which should be loaned to any member desirous of borrowing them, in the same manner and subject to the same regulations as books are issued from the library. This need not entail any extra work upon the Secretary, for the duty of issuing and receiving the slides could easily be undertaken by the librarian. The practical utility of such a scheme would be great, and its advantages would, we are convinced, be much appreciated by those who do not happen to be experienced in the making of lantern slides.

It may not be out of place to specify with greater particularity some of the more glaring of the defects to which we have previously referred in more general terms. The bad slides (speaking, of course, from a technical or manipulative and not from an artistic point of view) may be classed broadly into the intensely hard and black and white effects, and the grey, thin, and misty results, which are perhaps of the two the more endurable. The former defect is often due, as we have already pointed out, to the negative, but it may also be caused by under-exposing the lantern plate and forcing the development. Our own invariable practice is to at once reject an under-timed lantern plate, and make a fresh exposure, and it is one which we commend to the reader. Development should never be carried so far as to cause blocking of the shadows. The deepest shadows in a projected slide should be transparent and full of detail, but at the same time the exposure must have been sufficient to allow full detail in the high lights to develop up without forcing. The conditions most favourable to the attainment of this result are full exposure and slow development, with a diluted developer. Thin, poor slides are, of course, the result of over-exposure and too strong a developer, or the use of too thin a negative, and the method of working to be adopted to overcome the evil is naturally the exact converse of that just suggested. More cannot be said upon this branch of the subject now, the intention being rather to draw attention to a growing condition of matters which if allowed to continue cannot ultimately do otherwise than detract from the popularity to which society lantern shows have attained.

It has often seemed to us that a lantern evening might be rendered much more instructive and interesting to the members if a little more trouble were to be taken to make the thing "run," and something like system adopted. The usual plan of handing the slides higgledy-piggledy to the lanternist—anathematising him if they happen to get mixed—and either leaving the audience to supply titles, or else calling upon individual workers to name them, is usually a failure. We would suggest that each contributor of slides should write out and hand in with his slides a paper containing their titles, the kind of plate used, whether made by contact or reduction, the developer, and similar particulars. The chairman or secretary should be provided with a lecturer's reading lamp, and should from the paper handed to him describe and give full particulars of each slide as it appears upon the screen.

But for the super-sensitiveness which prevails at the present day, it would be unnecessary for us to say that in penning the above we have had neither individuals nor individual societies in our mind, nor have we been prompted by any spirit of carping criticism. We have been actuated only by an honest endeavour to promote a general desire in those circles where the faults indicated exist, to adopt such measures as would seem likely to lead to the production of better work.

A Use for a Glazier's Diamond.

By T. Perkins, M.A.

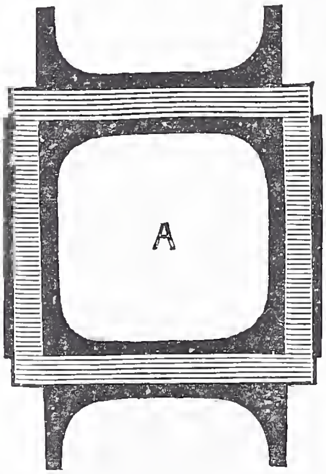
There is no more constantly recurring phrase in the criticisms on prints sent in to the Monthly Competitions for the medals offered by the Amateur Photographer than "The picture would be improved by an inch, or two inches, off the foreground." The reason, no doubt, is that photographic plates are, as a rule, too square; and yet the photographer who has carried for many miles the full area of his plates, and has paid for them in proportion to their area, cannot make up his mind to sacrifice, possibly, a third or more of that area which he has carried and bought. But the photographer who can use a glazier's diamond may often do much to suit the shape of his plate to his picture, and so save expense and weight. This will be a matter of most importance to those who work with large-sized cameras, such as 10 by 8 and 12 by 10.

The 12 by 10 plate if cut across will make two handy plates, 10 by 6, each suitable for a 9½ by 6 picture; since, if the half of the plate is simply laid cross-wise in the back, the vacant spaces of 10 by 3 at each end being filled up with millboard or light wood blocks, the rebate will take off a quarter of an inch or so at each end, but the whole width will be utilised; cut lengthways it will form two plates for 11½ by 5 pictures, very suitable for many subjects. A 10 by 8 plate in like manner will give two 7½ by 5, or two 9½ by 4. A whole plate may be similarly treated. Of course, the plate may, if desired, be divided unequally. Photographers rarely carry a large camera without some definite object in view, so that before starting they can cut their plates so as to suit the pictures they intend to get. These divided plates may, in many cases, be packed in the plate boxes in ordinary use. It is a good plan, when using a plate smaller than the full size of the ground-glass focussing screen, to compose the picture by means of a sheet of card the size of the screen with an aperture cut in it the same size as the plate. By holding this against the ground-glass, the exact amount of subject included and its effect will be more readily seen than if the size is simply marked by pencil lines on the ground-glass.

Lantern Novelties.

THE "SERSHALL" LANTERN-SLIDE BINDER.

Wm. Tylar, of High Street, Aston, has sent us samples of this new binder, which certainly facilitates the operation of binding slides.



To use the binder, it is placed flat on a table, gummed side uppermost, and the slide, mask, and cover-glass being ready, the gum is damped, and the slide laid down so that the corners coincide with the cut-out corners of the binder. The points are then turned down first and rubbed into contact with the glass, and the two sides are turned over, and given a final rub down, completing the operation. The advantages are the greater facility in adapting the binder, greater security from dust, greater speed in binding, and better finished appearance, with great strength of the corners.

Fifty binders and fifty assorted masks are issued in boxes, price 1s., and it is a capital practical idea and likely to be useful to all lanternists.

THE UNIQUE LECTURER'S READING LAMP.

W. Butcher and Sons, of Blackheath, have sent us one of their new reading lamps, which we have tried practically, and find it give a good light. The source of light is a special form of night-light, which emits no smell and will not spill about in travelling.

A little ruby window is provided at the back for signalling to the lantern operator, and the covering for the same may be sharply released, thus making a slight noise sufficient to attract the attention of an inattentive operator. A shade is provided in front to keep the light from the lecturer's eyes, and to throw it down on to the MSS. or reading.

The lamp is efficient, portable, and compact, and above all cheap, the price being only 3s. 6d.

Monthly Lantern Slide Competition.

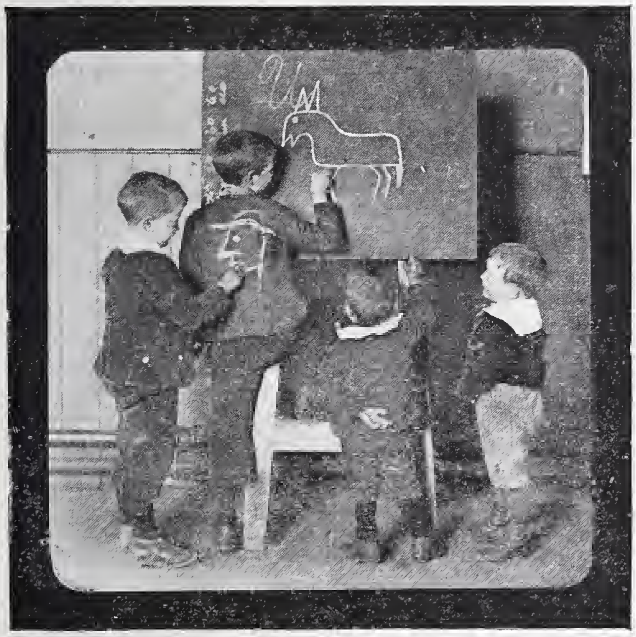
No. 44.—PORTRAITURE AND FIGURE STUDIES

WE are glad to be able to note a distinct improvement in the quality of the slides sent in. There are far fewer indifferent ones than usual.

CLASS I.

⁂ Red. = reduction; con. = contact.

CRABTREE, J. H. (Rochdale).—(1) "The Little Seamstress." Con.; Ilford special; hydro.; indoors, medium light. (2) "When the Cat's away the Mice will Play." Ditto. The slide we reproduce is capital in naturalness and treatment. The second is not so pleasing a subject.



No. 1.] "When the Cat's away the Mice will play." [*J. H. Crabtree.*

SILVER MEDAL.

OLIVER, J. C. (Glasgow).—(1) "Cornfield, Trossachs." Red. Edwards'; hydroquinone. (2) "A Crochet Lesson." Ditto. Handicapped by No. 1, which is a little heavy.

CARRUTHERS, G. A. (Liscard).—(1) "Once upon a Time." (2) "The Professor's Milk." Red.; Imperial; pyro and carb. soda. Reduced with magnesium ribbon burnt behind negative through ground-glass. Although we reproduce one of these slides and they take third place, we would point out that originality is desirable sometimes. The idea in the slide reproduced is too palpably a copy of R. P. Robinson's "A Merry Tale."

HANKINS, G. (London, N.E.)—(1) "School Days." (2) "In the Woods." Con.; Edwards; pyro amm. Two soft and highly commended slides.

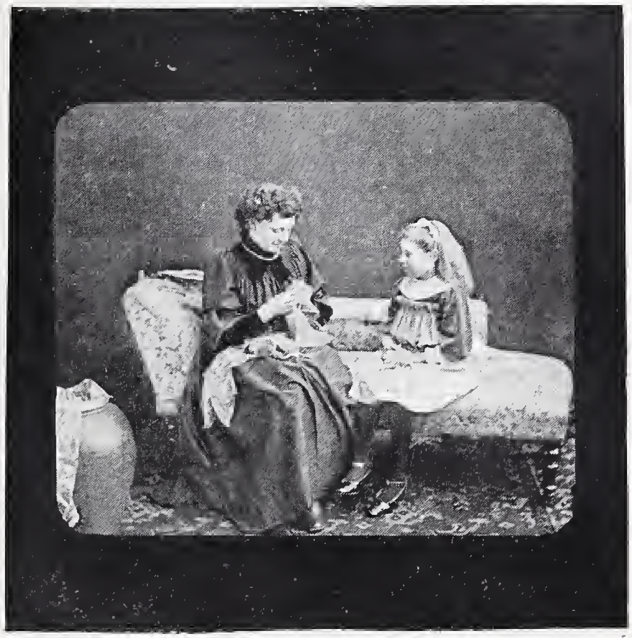
SNOWBALL, G. L. (Newcastle-on-Tyne). — (1) "Resting." (2) "Getting Information." Edwards'; con.; hydroquinone. No. 2 too harsh and brilliant.

GLAZEBROOK, T. (Ashton-under-Lyne).—(1) "Collecting Pheasants' Eggs;" (2) "Lapwings' Eggs: a Doubtful Nest." Con.; Cadett; hydro. No. 1 is the better; in No. 2 the posing is too evident.

ATKINS, R. (Waterford).—(1) "A Moorish Porter, Oran, Algeria;" (2) "Kabyle Girls Carrying Water Jars." Con.; collodio-bromide plate; pyro; carb. of amm. Both too hot in colour.

COLLIER, R. (Liverpool).—(1) "African holding Boa Constrictor;" (2) "A Portrait." Red.; hydro. No. 2 is of very fine quality, but No. 1 poor.

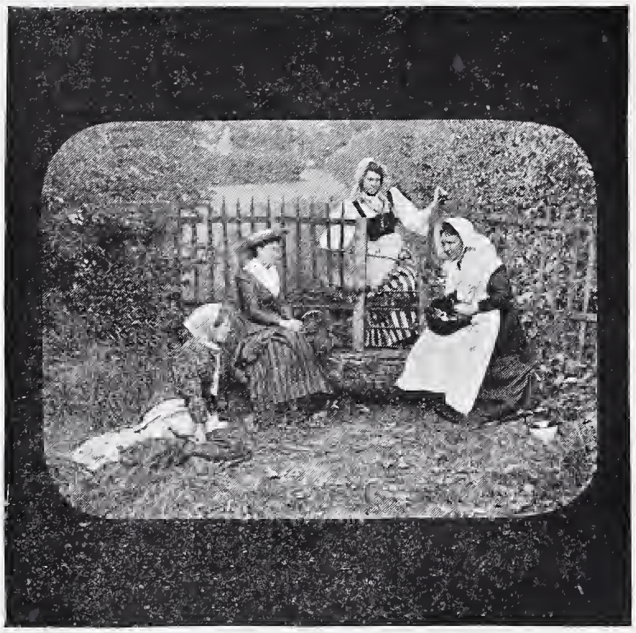
SAWYER, J. (Southsea).—(1) "Mending the Net," (2) "Fisherman's Daughter." Con.; Ilford; hydro. No. 1 very good, fine in quality, and a good subject.



No. 2.] "A Crochet Lesson." [*J. C. Oliver.*

BRONZE MEDAL.

STEIN, J. (London W.).—(1) "Bubbles;" (2) "His own Croft." Red; Mawson; pyro and amm. No 1 is too weak, but the second a very fine one.



No. 3.] "Once upon a time." [*G. A. Carruthers.*

CERTIFICATE.

PERKINS, E. A. (Shaftesbury).—(1) "My Sister." Red.; Mawson; hydro. A little too soft. (2) "A Wee Lassie." Con.; Ilford; rodinal A capital slide.

MORGAN, H. G., Rev. (Herefordshire).—(1) "Wrong;" (2) "Hop

Pickers." Red.; Paget slow; hydro. Two good slides and highly commended.

HAWES, W. A, (Aberdeen).—(1) "On Fritton Decoy;" (2) "'Yorkie' sings a song." Con.; Thomas; hydro and soda. Two good slides technically, but poor artistically.

SHAW, J. (Manchester).—(1) "What Shall I Say?" (2) "The Old Cabinet Maker." Con.; Mawson; sulpho-pyro and amm. carb. Capital work and highly commended.

GUTHRIE, A. D. (Edinburgh). — (1) "Idle Moments;" (2) "Gossiping." Con.; Paget slow; hydro.

TIMMINS, C. A. (Runcorn).—(1) "Meditation;" (2) "Waiting." Con.; Edwards; pyro. Two good slides, No. 1 especially.

WAIN, E. B. (Stoke-on-Trent).—(1) "A Manx Skipper;" (2) "A Letter from Home." Red.; Thomas; rodinal. No. 1 a little too thin.

MARRIOTT, E. L. (Liverpool).—(1) "The Fisherman's Daughter;" (2) "The Lobster Woman." Red.; Ilford; hydro., soda. No. 1 is a good example of sunlight work, but too weak. No. 2, a little too harsh.

VARDEN, G. E.—(1) "Toil;" (2) "Pleasure." Con.; Mawson; pyro amm. Both too stiff in posing. No. 2 is the better technically.

NORTHWOOD, W. (Stourbridge).—(1) "The Fortune Teller;" (2) "Shrimpers." Con.; Ilford Special; hydro. No. 1 is good; but 2, harsh and under-exposed.

HARDING, G. (Stourbridge).—(1) "Gipsies at Home;" (2) "Vanity." Con.; Ilford special; hydro. Good work and commended by judges.

RICHARDSON, J. T. (Nottingham).—(1) "Spring;" (2) "Going Fishing, a Rest by the Way." Con.; Imperial; "Imperial" formula. Too thin; slightly under-developed.

TIMMS, J. (Burrow-in-Furness).—(1) "Home Lessons." Con.; Fry's; Rodinal. A nice soft slide. (2) "A Good Load." Red.; Alpha; hydro. Fearfully hot and unpleasant in colour.

CLASS II.

HERMON, G. E. (Doublebois).—(1) "Roman Flower Girl;" (2 "Shadowed." Red.; Thomas; hintokinone. No. 2 is too harsh, and No. 1 under-developed.

GOTTLIEB, A. W. (Shrewsbury).—(1) "Study of Old Age;" (2) "Our Park-Keeper and the Frozen Fountain." Con.; Ilford; hydro. No. 1 is very fine, but No. 2 an absolute failure.

PLATT, S. A. (Ashton-under-Lyne).—(1) "Cousins." (2) "My Swiss Costume." Con.; Ilford special; hydro. Too harsh, under-exposed, and under-developed.

DEAN, S. (Huddersfield). — (1) "Portrait;" (2) "Content." Con.; Ilford special; hydro. Very poor artistically, and not good technically.

STAINTHORPE, W W. (Saltburn-by-the-Sea).—(1) "The Reaper;" (2) "Figure in Tableaux-Vivants." Red.; Thomas; quinol. Much too thin and weak, veritable ghosts on the screen.

NEILL, D. J. (Liverpool).—(1) "A Scottish Piper;" (2) "A Cyclist." Red.; England; hydro. and eiko. Too patchy, too black and a hideous greeny-black tone.

MAXWELL, J. P. (London, N.).—(1) "A Group of 'Caddies,' Cullen, N.B." Red.; Paget rapid; hydro. (2) "Perseverance;" Con.; Paget rapid; hydro. Too weak and thin.

CHANG, S. T. (London, W.).—(1) "The Sisters;" (2 "Fairer than Spring." Con.; England; hydro. No. 2 would be a good slide had it been made by reduction; as it is now, the masks cuts off too much of each side.

The Lantern Slide and its Relations to Art.

By HENRY J. NEWTON.

THE subject which I shall treat this evening will be, in the main, the Relations of Art to the Lantern Slide. That there may be no misunderstanding of what I may say, or misinterpretation of terms used, I will, in the first place, define as fully as seems to be needful, what I mean by the term artistic in relations to and bearings on the subject under consideration.

I shall try to avoid assuming a dogmatic position by asserting that my way is the only way; that all who may differ from me are ignorant and idiotic.

The fact is that the interpretation of the word art is very flexible and becomes quite apparent when we attempt to compare it with the interpretation of the word science. In the latter we must have certainty by demonstration. In art the element of certainty can hardly be said to exist except in the minds of the advocates or leaders of certain schools. Modern art, in civilised countries is, in the main, the product of educated and cultured sentiment, and sometimes, when at its best, compares unfavourably with the artistic work of so-called Pagan nations.

In metallurgy the Japanese surpass in artistic work that of any European nation or people, but in landscape drawing they are as conspicuous as a failure as they are a success with metals, pottery, porcelains, and textile fabrics. This is due to their ignorance of a scientific principle in nature, which is the arbitrary law of linear perspective; and this is about the only point where science and art clasp hands.

It seems to me that in defining art, it should, as a rule, be done in general rather than in specific terms. There can be no specific rule for colouring a landscape; a rule which would dictate to every landscape artist precisely the same pigments or compounds of pigments to be used invariably in colouring specific parts of the same view would be impracticable.

The reason why this is impracticable is because one of nature's immutable laws forbids it. Nature seems to possess the omnipotent capacity of producing infinite variety in the same species, and she exercises this power to the fullest extent in her production of the optic nerve in the human being with sensation and perception. No two artists see or depict with precisely the same colours the same view.

The methods of each are as distinct from the other as their handwriting, and is as difficult to counterfeit. The artist who succeeds in representing form and colour as the cultured majority see it becomes the popular artist.

The senses which respond most readily to the allurements of art are seeing and hearing. Such artistic effects are usually distinguished as "fine arts," to separate them from the "mechanical and useful arts." The sense of seeing is the one involved mainly in the subject before us this evening. What charms the tympanum is the harmonious blending of atmospheric waves.

At the present time I am not trying to interest you through that avenue of sensation, and am making no effort to produce pleasurable artistic sensations by draping my thoughts in eloquent language and presenting them through an expert elocutionist, which would produce artistic effect, but shall address myself to the sense of seeing, which sense is the result of waves of a much more subtle agent than the atmospheric waves, and the sensation of colour is largely the result of the blending of these etherial waves, and whether the effect on the nerves be one of pleasure or pain depends upon whether the blending be harmonious or inharmonious, the same as results to the sense of hearing when musical notes fall upon the ear; and whether the sensation be pleasurable or painful will depend upon the fact of whether the atmospheric waves unite harmoniously or discordantly.

I hold that anything which produces unpleasant or disagreeable sensations cannot be artistic, and further that which produces pleasurable sensations without producing weariness is the most artistic.

There may be artistic sensations produced by a loud clanging and banging of musical instruments, but the senses soon tire of it and seek relief. The popular and orthodox lantern slide has just the effect on my optic nerve which noisy music has on the nerves of my ear, and under an hour's strain my optics become tired and rebel. This should not be so. The fault is of long standing and originated in the early days of photography in consequence of certain notions entertained by professional photographers. Artists of that time treated photography with ridicule and contempt; a petty warfare was kept up between the artist and the professional photographer. The photographer who could make a photographic picture became inflated with exaggerated notions of his importance, and just in the degree of popular favour awarded to photography the artist's jealousy was increased and expressed.

The mistake which the early producers of lantern slides made was the ignoring and ruling out atmosphere from the slide—absolutely clear glass was the fatal dogma. This was purely a photographic notion and unartistic to the last degree. Aerial perspective is almost, if not quite, as potential and necessary in a landscape painting as linear perspective. The supreme effort of a landscape artist is to reproduce nature, and to do this he must paint atmosphere. No photographer can make a perfect negative of an out-of-door view without photographing atmosphere; the longer the distance photographed the more atmosphere. If a negative should have atmosphere represented in order to be perfect, it follows that a lantern slide made from such a negative to represent it should represent *all* the atmosphere in the negative. If this be so, it follows that a dry-plate which will make a *good* negative will, with the same careful manipulation, make a good lantern slide. This seems quite a rational theory, although it is radically heterodox. Yet dogmatic notions, whether antique or modern, have to, in the long run, submit to modification and change when assailed by *demonstrated facts;* and the slides which I shall exhibit this evening will mainly be for the purpose of demonstrating the correctness of the theory just advanced. These slides have been made, as a rule, on the most sensitive plates in the market. Special plates usually used I shall only exhibit for the purpose of illustrating the point at issue.

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* Read before the American Institute.

I will not deny that there may be cases where a very thin negative without much contrast is used, that a special plate would succeed better than a quick plate; but my way would be to strengthen the negative and use the quick plate. The modern lantern slide has become one of the most useful products of photography, and in its adoption to illustrate lectures almost a necessity.

There is scarcely a limit to its use in this field, and it frequently happens that the viewing of slides used on such occasions produces more pain than pleasure because of defects in their production.

The amateur photographer of the present is a devotee of the lantern slide; after becoming able to make a respectably good negative his effort is to make with it a good slide, and I would not say a word to discourage him or her. Working at any photographic problem, in my opinion, is healthy mental exercise. It necessitates contact with scientific problems, which creates a thirst for more light, and inspires a longing and a desire to become more familiar with nature and her methods. The negative and the positive are alluring lights that beckon the student on; torches that illumine the way; prophetic voices that promise reward for diligent labour and patient toil. They are nature's representatives, and they bring you in close communion with some of her mysteries, and you are led to realise that just out of your reach nature conceals a golden key with which you could unlock some of her secret chambers if obtained; and she points to the past and shows that the ones who have obtained the magical keys have been the diligent ones, who by toil have earned the privilege of culling few jewels from her great storehouse. I believe there is nothing better for the ethical and intellectual growth than to become interested in scientific and artistic studies. I would not say a word which would tend to cool the ardour or enthusiasm of the investigator of nature, but would use my influence, as far as possible, to inspire and encourage.

The wonderful advance made in the present century causes the question to be frequently asked in reference to the future, whether we have not obtained about all of nature's most valuable secrets, and if there is any probability that the next century will, in any respect, be as wonderful as the one that is passing away. From my point of observation my answer would be that we have just commenced; we have not as yet learned the first letters of the alphabet which tells of the possibilities and powers of human reason, and have not even entered the vestibule of the great temple of knowledge.

There is everything to encourage those who are enamoured with the investigation of the great problems that surround us on every hand. What we know, when compared with the unknown, is like a few grains of sand compared with the sand on the shores of all the seas and oceans—so to the young or to the old I would say, *go on*, an infinite field is before you.

The A B C of the Lantern.

Blow-through Jet. Originally known as the oxy-calcium jet, and sometimes referred to as the "Safety" jet. It is the easiest form of limelight to work, and, as the latter name indicates, is with ordinary care free from danger, even in the hands of a novice. The term "blow-through" indicates to some extent its construction, which is shown in fig. 8. The jet consists of two tubes fitted with stop-cocks, to regulate the admission of the gases, terminating in a nozzle. The tube which conveys the house gas, or carburetted hydrogen, is left of its full diameter, but that which conducts the oxygen is contracted to a very small aperture at the nipple, and is usually placed just inside the outer, or house gas, tube, so that when the latter is lighted a fine stream of oxygen is blown through it on to the lime. The illuminating power of this jet varies according to the manner in which it is constructed, but in its best form and when skilfully managed a light equal to 250 or even 300 candles may be obtained. Fig. 9 shows in section various modifications of the blow-through jet. In each case the inner tube conveys the oxygen, and the outer the house gas. A is the oldest type, and the one which gives the least light; but the orifices of the two tubes being entirely separate, it is the safest and easiest form for the beginner to manage. In B the oxygen tube is placed within but flush with the orifice of the tube conveying the house gas; it is the form which is in most general use. The best light is obtainable with C, in which form the nipple of the oxygen tube is sunk below the top of the hydrogen tube to the depth of about a quarter of an inch. With this form of jet a snap or slight explosion may occur if the oxygen is turned on suddenly, which, although quite harmless in its nature, is nevertheless unpleasant and might cause apprehension of danger to an audience. In connecting the jet to the house gas supply it will generally be necessary to remove the ordinary burner with a pair of gas-pliers, and slip the india-rubber tube over the free end of the pipe, it being necessary to have a tolerably free flow of gas. All limelight jets should be purchased from makers of acknowledged reputation, their performance depending to a large extent on the manner in which they are constructed.

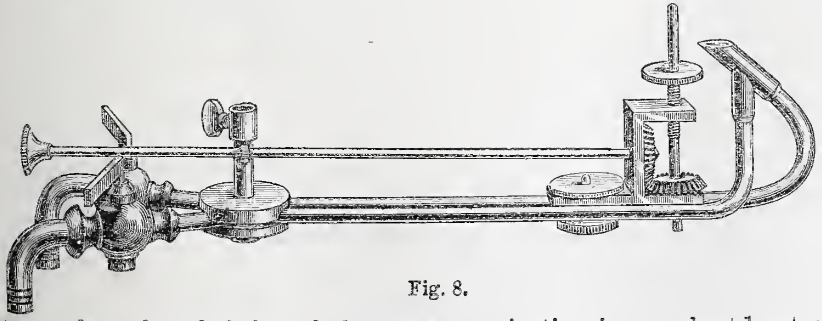

Fig. 8.

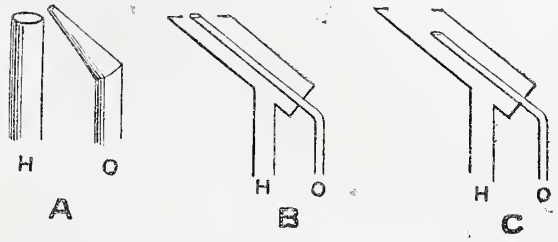

Fig. 9.

Boards, Pressure. These consist of two flat boards hinged like the covers of a book, the wedge-shaped bag of gas being placed between them and weights applied to the top board so as to cause a steady pressure. For the blow-through jet, if house gas can be obtained from the main, only one bag for the oxygen is necessary, but when the mixed jet is used a second bag for the hydrogen, or coal gas, will be required. When bags are so employed, it is absolutely essential that the two gases shall be under uniform pressure, and this end is best secured by the use of double pressure boards. For the sake of securing portability, the boards, instead of being make solid, are sometimes constructed like a frame, stout canvas being laced across so that pressure may be applied uniformly to the bags. The upper board should be provided with a hinged ledge, against which the weights should be placed. The weights should invariably be affixed to the board with stout cord, so as to render their accidental dislodgement an impossibility. In starting with full bags and projecting a moderate-sized disc a pressure of about 1 cwt. should suffice; but as the bags get empty, more pressure will be required in order to maintain the light.

Body of Lantern is the chamber which encloses the source of light, and to which the optical system is attached.

It usually takes the form of an oblong box, and in the cheaper lanterns, in which paraffin lamps are employed, is generally constructed of tin; better class lanterns of the same type are sometimes made of the material known as Russian iron, while the most expensive lanterns are constructed of mahogany with an inner lining or casing of metal. As the most important attributes of a lantern body are strength and durability, it is a matter of necessity that only sound and thoroughly well-seasoned wood should be used in its construction. Old mahogany table tops, if such can be procured, form the very best material for the purpose. A lantern body should be as plain and free from ornamentation as possible, elaborate mouldings and similar embellishments being quite out of place. A door, provided with sight holes, should be fitted to each side of the lantern, so that the operator may be able to attend to the adjustment of the jet from either side; adequate provision should also be made for ventilation. The back of the lantern body is usually hinged to the upper part of the lantern, the lower portion being cut away to allow of the entry of the jet. This arrangement, though convenient, frequently allows a great deal of light to escape from the lantern, but in several instruments of recent introduction the flap door has been replaced by an adjustable curtain suspended from a brass rod at the back; when the jet has been properly centred, the curtain is closed and completely prevents the egress of light. Whatever be the nature of the illuminant, a wooden body is always to be preferred to one of metal, not only on account of its greater durability, but because the latter, particularly when an oil lamp is used, becomes very hot, and radiates the heat to an extent which is often uncomfortable to the operator. The modern metal lanterns fitted with mineral oil lamps are very much smaller in dimensions than those of the old phantasmagoria type, the tall chimney glasses of the argand lamps employed in the latter necessitating a high body and long tapering chimney. Every tin body should be fitted with at least one door, so that, if desired, the limelight may be employed. In the modern type of metal body the lamp and chimney is entirely separate and distinct, a shorter cowl or chimney being provided for use with the limelight.

Bore of Jet. This refers to the internal diameter of the orifice of the nipple through which the mixed gases issue in the oxy-hydrogen jet. The performance of a jet will depend greatly upon the bore, for if it be too large the jet will burn with a roaring noise, and will also be liable to snap or go out with a slight explosion. On the other hand, if the bore be unduly small the intensity of the light will be materially diminished. Roaring is also caused by the interior of the nipple or bore being badly finished, or left rough, in which case the jet should be returned to the makers. With a properly constructed mixing chamber a nipple with a bore of 1-10th to 1-12th of an inch may be used. Bores of such a large size cannot be employed for the oxy-ether light when sulphuric ether is employed, because the snapping which results cannot be obviated.

Brin's Oxygen Process. In this process, which is protected by patent, and named after its inventor, a French chemist, anhydrous oxide of barium is heated to redness in a closed retort. Pure atmospheric air is then passed over the heated mass, which at once takes up the oxygen contained in the air, converting the oxide into the dioxide. The temperature in the retort is then considerably increased and the action of the pumps reversed, the effect of which is to re-convert the dioxide into oxide, pure oxygen being at the same time evolved. There being practically no waste in the working of this process, the manufacturers are enabled to supply the gas at prices previously unheard of. The gas is sent out in steel cylinders (see CYLINDERS) compressed to 120 atmospheres, at prices varying from 2½d. to 4d. per cubic foot. Some operators still prefer to use gas prepared from chlorate of potash, alleging that a better light is obtainable, but certain difficulties which were formerly experienced in eliminating the nitrogen have now been overcome, and the gas supplied by the Brin Company is, in our experience, now of uniformly excellent quality.

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Collotype at Messrs. Morgan and Kidd's.

MESSRS. MORGAN AND KIDD, of Kew Foot Road, invited us to be present at a demonstration on "Collotype Printing," which they were giving to the members of the Richmond Camera Club and the London and Provincial on 30th ult., and a very good muster took advantage of the opportunity to see the process from start to finish.

The visitors were met by Mr. R. L. Kidd and Messrs. Morgan, and conducted into the collotype department, where five steam machines and numerous hand presses were hard at work. Mr. Kidd then read the following paper:—

We have great pleasure in welcoming you here to a demonstration of the working of the collotype process, a process which is now being used very largely in connection with commercial photography. We may say there is scarcely an art or handicraft wherein the application of this process has not been used of recent years.

Collotype is *one* of the many photo-mechanical processes now in practice. We can confidently say that this process is one of the best, if not *the* best of all processes where quantities are required.

The collotype process is well adapted for ordinary commercial printing, such as illustrated catalogues of machinery, furniture, ironware, pottery, pianos, and many other branches of trade or manufacture. The process is also adapted for the production of artistic show cards, address cards, memoranda, frontispieces of music, programmes. Specimens of many of these varied subjects are before you. Collotypes are especially adapted for superior book illustrations and for fine-art publications, for reproductions of paintings, portraits, and landscapes, etc.; in fact, for everything where first-class illustrations are desired with photographic accuracy.

Reproductions of celebrated oil-painting or other art subjects make splendid decorations for the beautifying of our drawing-rooms, etc.

We now give you a short description of the working of this process as usually practised.

An ordinary ¼-in. plate-glass is ground on one side with the finest emery powder. It is then thoroughly cleaned and well washed with water to get rid of the emery powder. When dry, it is coated with a substratum composed of solution of beer and silicate of soda; some prefer sugar and water instead of beer, but our experience is that beer is preferable. The beer should be slightly warmed before mixing it with the silicate of soda. Without the substratum the printing composition would not adhere to the plate glass.

After the plate is carefully coated with the substratum it is then placed on a plate rack and allowed to dry spontaneously.

When thoroughly dry it is washed in clean water for a quarter of an hour, and then placed again to dry as before. It is then put into the drying oven, perfectly levelled and heated up to about 120 deg. Fahr. It is then coated with a bichromated solution of gelatine and water, which must be of the same temperature, viz., 120 deg. Fahr., care being taken to avoid draught or any unevenness of the drying, which would cause markings to appear in the printing of the plate. There are some workers who dry them in a temperature of 150 deg. Fahr., but our experience is that this temperature is too high, and the results are inferior; the higher the temperature the coarser the reticulation or grain will be, and this would interfere with the delicacy of the detail.

We may point out that the printing from a coarse-grained plate is much easier than from a fine-grained plate, though the results are inferior. The coarse-grained plates are more used for commercial printing, as a much greater number of prints can be pulled from the plate. The finer grained plates are adapted for high-class illustrations.

There are many formulæ, and every collotyper has his own pet formula; there are a great many published in the various photographic papers.

A formula which will give good results by carefully working is as follows:—

Middle hard gelatine	100 parts.
Water (distilled)	1,000 „
Bichromate of potassium	22 „

Some workers prefer bichromate of ammonium instead of the potassium salt; in this case only 20 parts of bichromate of ammonium should be taken.

When the plates are thoroughly dry they are allowed to cool down gradually, and are now ready for exposure in contact with the negative, which must be a reversed one, except where the reversal of the image is of no consequence. The negative is placed into an ordinary printing frame, the collotype plate is then brought into contact face to face with the negative under heavy pressure, and exposed by day or electric light in the ordinary way. The right exposure is known by examining the image through the back of the plate-glass until all details show in a light-brown tint.

After the exposure is completed the plate is washed in clean water until all the bichromate has disappeared; this is known by the absence of the well-known yellow tint of the bichromate salt. It is then allowed to dry spontaneously at an ordinary temperature. When dry it is ready for the power machine or hand press, but it is advisable if possible to keep the plate about two or three days—the gradation and half tone would be found more perfect.

After placing it in the printing press it is necessary to moisten the printing surface with a solution of glycerine and water, which is generally called the etching solution. The parts where the light has not acted the gelatine will absorb more moisture; where the light has acted the gelatine has more or less hardened and will resist this etching solution. It is kept on the plate about fifteen minutes, and then taken off with a sponge and blotting paper. The plate is then inked up with a gelatine or leather roller charged with stiff greasy ink similar to the litho process. The parts where the gelatine has absorbed the etching solution now refuse to take greasy ink, whereas in the parts upon which the light has acted, the gelatine surface has hardened and made them more or less insoluble; they will not absorb the etching solution and will readily take the greasy ink; in fact, the greasy ink is repelled more or less in exact ratio to the amount of light acted on the plate, hence we obtain an image in all the gradations true to nature.

A considerable number of impressions can then be taken off the plate, but after each print the plate must be inked up again, and from time to time a fresh application of the etching solution is needed, otherwise the plate would gradually lose its power of repelling the ink. The printing part of the process requires a great amount of skill and experience to secure the finest results.

We will now proceed to give you a practical demonstration of the process, and shall be pleased to answer any questions during same or after completion.

The order of our demonstration will be as follows:—

(1) Grinding plates.
(2) Coating plates with substratum.
(3) Coating plates with gelatine composition.
(4) Drying plates: explanation of drying cupboards.
(5) Printing of plates, and a few remarks on fitting up various subjects, and advantages of stripping plates and films.
(6) Description of power and hand presses used.
(7) Making ready for the printing.
(8) Application of the etching solution; explanation of the modification of different parts of the image by longer or shorter time that the etching solution remains on the plate.
(9) Description of various dodges used to make the plate take or repel the ink during the inking.
(10) Inking up the plate.
(11) Pulling the impression.
(12) Cutting, trimming, and titling.

Mr. Berghoff, the manager, then conducted the party round the room, showing and explaining each process in detail, from the grinding of the glass to the final print.

One remarkable feature of the demonstration was the absence of any reservation. Every man and boy in the place seemed only too willing to impart all they knew, and in course of the numerous questions it transpired that Messrs. Morgan and Kidd make special stripping plates of ordinary rapidity, and recommended the following solution for coating the same:—

Gelatine (Coignet's middle-hard)	3 oz.
Water	20 „
Glycerine	10 drops

The negative being levelled, some of this solution is poured on and allowed to dry, and then the film is just slit round the edges with a penknife, and the whole can be removed, giving an excellent reversible film.

A very hearty and cordial vote of thanks was accorded to Messrs. Morgan and Kidd, and to Mr. Berghoff and the staff, and Mrs. Kidd also was thanked for the good fare she had provided; and we should strongly recommend any society wishing to see a perfect demonstration to try and induce Messrs. Morgan and Kidd to repeat this experiment.

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Exhibitions.

Society.	Entries close.	Opens.	Closes.	Address of Secretary.
Rotherham Photo. Society..	—	Feb. 7	Feb. 8	H. C. Hemmingway, 6, Stanley St., Rotherham
Durham City Camera Club...	Feb. 3	Feb. 14	—	R. Hauxwell, The Avenue, Durham.
Torquay Photo. Soc.... ...	Feb. 3	Feb. 14	Feb. 18	H. C. Howell, Nutley, Torquay.
Woolwich Polytechnic Phot Soc.	—	Feb. 16	Feb. 18	W. Dawes, 145, Chesnut Rd., Plumstead.
Holborn	—	Feb. 18	Feb. 2	F. J. Cobb, 3, Albion Grove, Barnsbury, N.
Manchester Amateur Photo. Society	—	Feb. 21	Feb. 25	Randolph Gilmore, 1B, Cooper St., Manchester.
Blackheath Camera Club ..	Slides, Feb. 28; Prints, Mar. 1	Mar. 3	Mar. 4	C. W. Piper, 46, Shooter's Hill Road (slides); Thos. B. Earle, The Art Club, Bennett Park, Blackheath (prints).
Fillebrook Atheneum ...	Feb. 20	Mar. 1	Mar 2	J. W. Spurgeon, 1, Drayton Villas, Leytonstone.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B.
Philadelphia (U.S.A.) Phot Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.

LOUTH.

The exhibition was opened on 26th ult. to the invited guests of the society, when there was a large attendance. The arrangements were satisfactorily carried out by the Hon. Secretaries, Mr. S. F. Clarke and Mr. Herbert C. Bentley, who were materially helped in their arduous duties by several members of the committee. The pictures represented all departments of photographic skill and almost every type of picture, and the variety and comprehensiveness of the subjects greatly added to the interest inspired in the mind of the visitor. Exhibitors belonging to the society were Mr. and Mrs. S. F. Clarke, Mr. Clarence James, Capt. Fowler, the Rev. C. W. Whistler, the Rev. J. E. Standen, the Rev. J. M. Coates, Mr. Oliver Burdett, Mr. R. Pickering, Mr. A. Hutchinson, Mr. V. T. Crow, Mrs. Fawssett, Mr. Herbert C. Bentley, Mr. F. J. Ingoldby, Mr. H. S. Forman, Mr. J. Hodgkin, Master E. Fawssett, Mrs. and Miss Vere, Miss Bradwell, Miss Oldham, Mrs. Ennals, Miss Cheetham, Mr. J. L. Mason, Mrs. T. O. East, Mrs. W. H. Smith, Mr. H. Braine, Mr. Walter F. Willey, and Mr. E. H. Forman. Those who sent pictures, other than members, were Messrs. G. Wilkinson (London), Edgar Lee (Newcastle), T. C. Bright (Upper Norwood), A. Burchett, Col. J. Gale (Bermondsey). Messrs. Alfred Maskell (Sunbury-on-Thames), A. D. Lever (Fife), Paul Lange (Liverpool), Ralph W. Robinson (Redhill), Edgar Dudley (Exeter), S. H. Bhedwar (Bombay), T. Seyton Scott (London), J. Chamberlain and H. P. Robinson (Tunbridge Wells), A. H. Hinton (Leytonstone), Ernest Spencer (New Southgate), R. Slingsby (Lincoln), A. L. Spiller (London), J. Kidson Taylor (Manchester), E. Calland (Camera Club), B. Alfieri (Cricklewood), H. Symonds (Portsmouth), George Lewis (Tunbridge Wells), F. Howard (Wallingford), Rowland Briant (London), W. B. Cassingham (Tunbridge Wells), J. Blair (Manchester), Herbert R. Spencer (London), Richard Keene (Derby), J. Davenport (Manchester), J. D. Pearson (Nottingham), Charles Reid (Wishaw, N.B.), J. C. Thompson (Selby), H. C. H. Spencer, Thomas Mansell (Cambridge) A. Debenham (Ryde), M. J. Harding (Shrewsbury), K. Greger (Islington), Louis Meldon (Dublin), G. Davison (London), H. Tonkin (Penzance), artistic and hand-camera work lent by Mr. C. W. Hastings (London), E. B. Wain, E. R. Ashton, "Holidays with the Camera" lent by the Editor of the AMATEUR PHOTOGRAPHER, Messrs. Alex. Keighley, George Lamley, "Hand-camera work" lent by "Photography," Messrs. G. Bailey (Driffield), W. B. Post (New York), T. Taverner, and A. R. Dresser (Bexley Heath).

Societies' Notes.

THE annual dinner of the P. S. G. B., at which the President, Capt. W. de W. Abney, C.B., R.E., will preside, will take place at the Café Royal, 68, Regent Street, on Monday, February 13th, at 6.30 p.m. Tickets, 6s. each, may be obtained of Mr. W. England, 7, St. James' Square, Notting Hill, W.; or of the Assistant Secretary, 50, Great Russell Street, W.C. Early applications are requested to enable suitable arrangements to be made.

* * *

MR. L. C. BENNETT, the well-known worker and Hon. Sec. of the West London Photographic Society, has been compelled, through pressure of private business, to resign his post, which will be, we are sure, a great loss to the Society. Mr. W. S. Rogers and Mr. J. Stein have been elected as Hon. Sec. and Assist. Sec. Mr. Rogers's address is 13, Addison Road, Bedford Park, W.

* * *

THE Camera Division of the Upper Holloway Cycling Club beg to announce that they have removed their head-quarters to the Royal Oak Hotel, St. John's Road, Upper Holloway. Also that the Hon. Secretary will be pleased to give full particulars of the Camera Section to any amateur photographer (cycling or otherwise) wishing to join. The annual subscription to the Cycling Club (which includes the Camera Section) is 7s. 6d. Hon. Secretary of the Camera Division—Mr. F. W. Timms, 5, Abercorn Terrace, Upper Holloway, N.

* * *

MR. JOHN T. COLLINS, of Chalfont St. Peter's, Slough, writes to inform us that there are a few vacancies in the Photographic Print Postal Society, and he will be glad to furnish all particulars to would-be members.

Societies' Meetings.

Birmingham (Photographers' Union).—A meeting was held on the 27th ult., Mr. Prince (President) in the chair. There was a large audience, which assembled to see the 1892 National Competition Prize Slides, but owing to some unexplained occurrence the slides never arrived. Mr. Fred. H. Davis, of the Talbot Photographic Album Club, kindly came forward to help out of the would-be monotonous meeting, and, in a short space of time for preparations, gave a most interesting lecture, illustrated with the lantern, on "Rambles in Picturesque Places," and a series of nearly a hundred photographs (taken by Mr. Davies) were thrown on the screen.

Bristol and West of England.—January 27th, Mr. Ed. Brightman in the chair, in the unavoidable absence of the President. Mr. Buchanan Wollaston, of the Platinotype Company, demonstrated the working of the new cold-bath process. The old paper could only be kept a few months, but the new cold-bath paper, in proper calcium tubes, will keep for a year, and probably for two years, as the Company had some now kept for twenty-three months which was perfect, being a longer time than any other printing paper. A great advantage is the wide latitude in printing-out, so long as paper is not underprinted, as even if much over-printed the paper is quite under control by the help of glycerine in the developer. Moreover, a good print can be obtained from a poor negative by local manipulation. A complete black and white print (for copies of maps or plans) is obtainable by adding a few drops of oxalic acid to the strong oxalate developer. Printing is carried out until the details are visible in the highest lights of a well-graduated negative, and consequently printing is deeper than with the old hot-bath paper. As long as any curl remains in the undeveloped print, after removal from the calcium tube, the paper is dry. The development with normal exposures of prints, and normal solution, takes thirty or forty seconds, but by adding glycerine and diluting solution with water, development can be make much slower if desired. However long the print may be left in the developer, the image will not be damaged, but the acid clearing must be more thorough. No means of destroying the image, except *hot aqua regia*, has yet been discovered, and this proves permanency. The prints can be developed by immersion, by brushing developer on, and even by one's fingers rubbing the solution on, as touching any part of a print prematurely with developer leaves no traces on finish of development. With plain strong oxalate developer, inky blacks and cold tones are obtained. Diluting developer with two parts of water gives a warmer tone. One part of oxalate solution, one part of glycerine, and two parts of water, and brushing solution on, much warmer tones; while the warmest colour is to be had by rubbing glycerine all over print before development, still further diluting the oxalate-glycerine developer, and using brush. To keep prints flat during development, pour glycerine on to a sheet of vulcanite or glass, rub evenly all over, place print face upwards on sheet, smooth down, and it will adhere firmly. Should the sky print through with a thin negative, rub the sky and other high lights in print with glycerine, brush on developer as usual, and the whites will be pure after the clearing baths. Hydrochloric acid (which must be water-white, and not "commercial") is better for clearing than citric acid, as the latter is hard to wash out of paper. Platinotypes print three times as fast as albumen in summer, and twice as fast in winter. Thin negatives should be printed under pale blue glass, and this produces bright plucky prints. Keeping solution moving on print with brush, and blotting off after final washing, gives brilliancy. To secure breadth in a flat print, brush over foreground with strong solution, and distances with weaker strengths. To get soft effects from hard negatives, take one part water and nineteen parts of glycerine, paint over print (which absorbs the water only), and develop as usual. In this way half-tone can be secured from a negative which has little. The glycerine must be free from admixture with citric acid, as sometimes what chemists sell as pure contains as much as 30 per cent. of citric acid. The acid would wipe out the image, just as the clearing bath would if print were put in before development. Pictures dry a little darker than they appear when wet.

City of London.—On 25th ult. Mr. R. E. S. Lawless gave a demonstration of "Bromide Printing," exposing and developing several prints, both with ferrous oxalate and eikonogen. Print from one of the negatives taken at the recent demonstration of "Flash-light Photography" was handed round as an illustration of the results to be obtained with only one lamp and no reflectors.

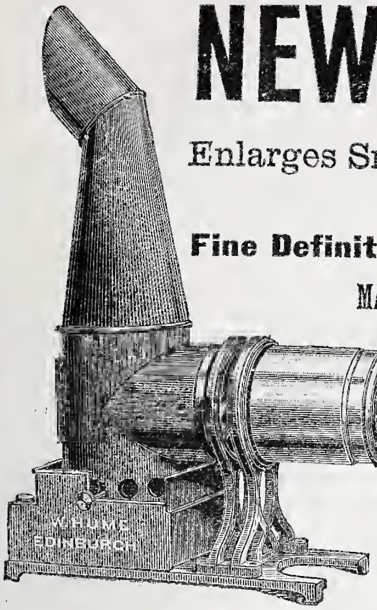
East London.—Ordinary meeting 24th ult., Mr. Pasco (President) in the chair. The evening was devoted to the inspection of the "Photography Hand-Camera Prints," which interested the whole of the members present. The members were reminded that on Tuesday, February 14th, Mr. F. W. Hindley had kindly promised to show his new set of slides, consisting of about 150, entitled "Through Ireland with a Facile."

Fairfield.—A meeting was held on the 24th ult., the President, Mr. Mallabar, in the chair. Mr. C. W. L. Lenton gave his demonstration on "How to Manipulate the Limelight Lantern." His explanations were extremely clear and proved his thorough acquaintance with the matter in hand. Some fine slides brought by various members were then exhibited.

Hackney.—Meeting held 24th ult., Mr. Charles W. Hastings in the chair. Mr. Carpenter presented a number of his lantern slides to the society. Mr. Reynolds presented the society with an album. Both gentlemen were thanked. Mr. Lewis Medland then gave a very interesting lecture on the "Zoo." The lecturer explained that the slides were nearly all from hand-camera negatives, here and there supplemented by drawings of animals by Buffon, which latter caused great amusement. A composite picture of a lion in Epping Forest was funny. All kinds of animals were spoken of by Mr. Medland, who has travelled a great deal, and consequently the lecture was the better rendered. When at the Zoo, Mr. Medland was especially favoured, and has been successful in obtaining some capital negatives of the animals there, and of some now dead and gone, such as Jumbo, etc., were shown. The lantern was manipulated by Mr. A. S. Newman, assisted by the Hon. Secretary. From the question-box: "Can Alpha paper be toned after fixing and drying?" It was said that Mr. Howson, at a previous meeting, said "Yes, it could be." Question 2, "Is it necessary to varnish a negative previous to retouching?" Mr. R. Beckett said, "Do all the retouching and varnish after, then mend any defect on the varnish." Mr. Hastings then presented the society with the biunial lantern won by them. He said it gave him great pleasure to be able to say their members did really excellent work, and that an additional silver and bronze medal was given. The medals were then formally presented. Messrs. Taverner and Hankins taking the silver, and Messrs. Carpenter and Grant bronze. The society also takes a gold medal. In addition, Mr. Hastings handed Mr. Hankins a medal for the Monthly Competition. The Hon. Secretary announced that at the next meeting Mr. W. E. Debenham would lecture on "Transparencies by Carbon Process."

Halifax.—On 20th ult. a social evening was held. There was a good show of photographs and enlargements, chiefly done by members of the club; also an exhibition of various kinds of photographic apparatus. A numerous collection of members' lantern slides were thrown on the screen at intervals, and the proceedings were interspersed with musical performances by several ladies and gentlemen. The club only having been in existence about a year and a half, and this being the first affair of its kind, it was considered quite a success.

Liverpool (A. P. A.).—A meeting was held on 26th ult., the President, Mr. A. J. Cleaver, in the chair. Fifteen new members were elected. The President announced that a series of lectures and demonstrations had been arranged, which would take place every Thursday until the middle of April. Two prints were exhibited by Mr. Rogers, a member of the association, showing the great



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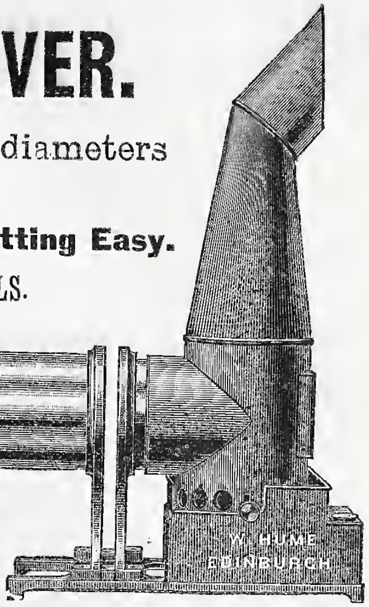

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difference obtainable from the same standpoint, following out the principle of the tele-photographic lenses. Messrs. Ross' twin-lens hand-camera was exhibited and fully explained by Messrs. Sharp and Hitchmough. The prizes gained at the 1892 annual competition were presented to the successful members, and the "Picture-Making by Photography" slides were then shown by Mr. Hastings.

North Middlesex.—A lantern night was held on 24th ult., about ninety members and friends being present. Slides were shown by Messrs. Golding, Johnson, Taylor, Mattocks, Treadway, and Chang. The advantages of the affiliation scheme to the P.S.G.B. was further demonstrated by the loan of a splendid collection of slides, which evoked considerable applause—the flower studies of Mr. Carpenter and the cloud effects of Mr. Dore being particularly admired and afforded the members present a splendid standard up to which to work. Mr. Treadway presided at the lantern.

Nayland.—On Wednesday evening, Jan. 25th, a lecture was delivered by Rev. E. C. Sawdy, in the Nayland Congregregational Schoolroom. The subject, "Peak and Dale," was illustrated by a fine series of photographic lantern views, kindly lent by the Editor of THE AMATEUR PHOTOGRAPHER. Admission being free, a good audience assembled, and the pictures were much enjoyed and applauded, it being many years since a similar exhibition had been given here.

Newcastle.—The annual meeting was held on the 24th ult., Alexander S. Stevenson, J.P., presiding. Mr. Thompson, in the absence of the treasurer, submitted the financial statement, which showed that the balance in hand was £5 9s. 6d. The report was adopted. The hon. secretary (Mr. Edgar G. Lee) read the annual report, which stated that the council again had pleasure in being able to congratulate the members on the continued and increasing prosperity of the association, the membership now standing at 168, being an increase of forty as compared with the previous year. The meetings, both outdoor and indoor, had been much more numerously attended. The acquiring of new premises at the Art Gallery undoubtedly constituted one of the most important events in the history of the association, and the council hoped that with the increased facilities for useful work which it now possessed, the association would continue to progress in the future. The council, in conclusion, expressed their extreme regret, in which the members would join, at the loss the association would sustain by the removal of the President (Mr. Stevenson) from the district. The report was adopted. The result of the election of officers was then announced as follows:—President, Mr. J. Pattison Gibson; vice-presidents, Mr. Alex. S. Stevenson, J.P., Mr. L. Sawyer, Mr. M. Auty, and Mr. H. G. Ridgway; treasurer, Mr. Frederick Park; secretary, Mr. Edgar G. Lee; assistant secretary, Mr. James Brown; council, Messrs. W. Parry, W. P. Brewis, J. Watson, J. H. Robinson, G. L. Snowball, T. O. Mawson, J. Kirkwood, L. Williamson, W. E. Cowan, and G. Hall.

Plymouth (Graphic).—The ninth annual meeting was held on the 25th ult. The Secretary, in his report, stated that there had been during the past year a very promising increase in the attendance at the meetings, the number of members being about the same, one less than last year. The Treasurer reported a good and increased balance. The Chairman (Mr. Kerswill), Treasurer (Mr. Watson), and Secretary (Mr. Hawker) were re-elected, and Mr. Micklewood, Mrs. Allen, Miss Picken, and Mr. Treleaven were chosen members of the council for the ensuing year. Votes of thanks were passed to the officers, to the Editor of the AMATEUR PHOTOGRAPHER for the loan of prize slides, and to the editors of periodicals sent to the Society, and a scheme for the better distribution and circulation of the same was adopted. An adjournment having been made to the larger room, where friends were assembled, a pleasant evening was spent; photographic views and apparatus being shown, including the novel "Panoram," an invention of one of the members, a Ross hand-camera, etc. Vocal and instrumental pieces were given at intervals by some members and friends.

Pudsey.—The annual meeting was held on the 24th ult., Dr. Hunter presiding. A detailed report was read by the Secretary, the treasurer's account showed a balance in hand, and the roll of members is well maintained. The officers were re-elected with the exception of Mr. Barrow, who resigns his position of vice-president in favour of Mr. Crosthwaite. Mr. Crosthwaite read a paper, and gave a practical demonstration on the toning of the P.O.P. and Solio papers by single and combined baths.

Putney.—A meeting was held on the 23rd ult., Dr. J. F. Farrar in the chair. Three new members were elected. Mr. John A. Hodges, President of the West London Photographic Society, kindly read his lecture (illustrated by lantern slides) on "Rambles with a Camera in North Wales," to those members and their friends (about 100) who were present. No doubt this large attendance was mainly due to the pleasing recollections of his lecture on "North Avon" given before the Society last year. Mr. Hodge's graphic powers of description, marked enthusiasm for Welsh scenery, together with his quiet, dry humour, were thoroughly appreciated by an attentive audience. It is quite unnecessary to say that the hundred slides illustrating his remarks were of the best quality, showing true artistic feeling, as well as perfect technique. For the information of any brother photographers who may wish to do good work in Wales, the following particulars of the route taken by Mr. Hodges may be acceptable:—Start from Llangollen, and follow the course of the Dee, past Bala, to Dolgelly; thence down the estuary of the Nawddach to the sea at Barmouth, continuing the journey by the Cambrian Railway to Harlech and Portmadoc; leave the train there and proceed by coach to Beddgelert, changing there into the Bettws-y-Coed coach; from that quaint and picturesque village take the North-Western Railway to Conway, Penmaenmawr, Bangor, and Carnarvon. By taking this route, no doubt much of the finest and most beautiful scenery in North Wales could be visited in a tolerably short trip of about a week or ten days.

Richmond.—On the 16th ult., Mr. Davis in the chair, Mr. G. W. Ramsay read an interesting paper, entitled "A Comparison of Different Printing Processes." After a short historical sketch of the evolution of modern printing processes, and a few remarks upon combination printing, Mr. Ramsay proceeded to notice in detail the principal makes of paper, both for printing-out and for development, now in the market, showing specimen prints on every variety. He summed up his "comparison" by quoting the toper's judgment on whiskies, "All are good, but some are better than others!"

Rochester.—A meeting was held on the 24th ult., when Mr. Neate exhibited some apparatus of his own designing, one being for exposing a plate one quarter at a time, due to an appliance fixed in front of the plate and by shifting the lens to the four quarters. The arrangement was a simple one, and several plates were exhibited showing the copying of four sheets of manuscript from a book on one plate. Another was a washing apparatus for plates and prints, and Mr. Neate promised to get some made for the members. The rules and regulations for the photographic competition to be held on the 12th April were settled at this meeting.

Tunbridge Wells.—The sixth annual meeting was held on 26th ult., there being a very full gathering, being the largest of the year, Mr. E. R. Ashton, one of the Vice-Presidents, in the chair. The Hon. Treasurer, in presenting the accounts, stated the finances were in a better position than last year, and the Hon. Secretary in his report congratulated the members on the continued advance of the association, there being more members on the books this year. Excursions were held, though the weather militated against the success of several, being so very wet, the most enjoyable being the visit by special invitation to Sir David Salomons, Bart., the patron of the association, at Broomhill, which is always considered a red-letter day. Papers have been read on various subjects, there being something of interest for each meeting. The sixth annual meeting was held the last week in November, and was admitted to be superior to any that had been held, a much larger number of exhibitors sending in to the open classes, a great improvement being noticed in the members' work. The Great Hall was lighted with the electric light. In consequence of the very high standard set up, a great many of the medals were not awarded—none in the members' classes. The following gentlemen were elected officers for the ensuing year:—President, Mr. F. G. Smart; Vice-Presidents, Rev. A. T. Scott, Messrs. E. R Ashton and George Lewis; Hon. Treasurer, B. Whitrow; Hon. Secretary, Joseph Chamberlain; Hon. Auditor, W. E. Brampton; Committee, J. W. Morgan, A. W. Pierson, and E. Catchpole. The Chairman then stated that he had a pleasant duty to perform; he said they were all agreed that the time had arrived when they should recognise the valuable services the Hon. Secretary (Mr. Joseph Chamberlain) had rendered the association, and he had much pleasure in handing him a gold watch, on behalf of the members, as a mark of their esteem for the indefatigable way he had conducted the arduous duties of the office. The Hon. Secretary said he wished to thank them all for their handsome present and for all the kind things the chairman had been good enough to say about him; he was very proud to feel that anything he had done for the Association should meet with such unanimous approbation, and the watch would remind him of the kindness and consideration he had met with from all the members. He thought there were very few societies who were so fortunate in having a patron like Sir David Salomons, Bart., and a President like Mr. F. G. Smart, who took so much interest in the actual working of the Association, which was one of the main secrets of its success, coupled with the great cordiality that existed between himself and the other officers, to whom he tendered his best thanks for their kind co-operation in the work which had been carried out, and he again thanked them for their kind present, which he should always value. The watch was a handsome gold keyless one, having the recipient's monogram on back, and on the dome was engraved, "Presented to Joseph Chamberlain by the Tunbridge Wells Amateur Photographic Association, in recognition of his services as Hon. Secretary, 1893." It was supplied by Mr. Cornell, of Tonbridge, one of the members, and has a Kew certificate, having been tested there. Letters had been received from Sir David Salomons, Bart., regretting his inability to be present through an important engagement in town, and from the President also, and all regretted the cause of his absence, and wished him a speedy recovery to convalescence. The Chairman was congratulated on having been awarded the silver medal in the "Holiday with the Camera Competition," and Mr. J. W. Morgan showed the whole-plate camera, lens, stand, three double backs focussing cloth, and leather case, the prize he had won for hand-camera work in the Optimus competition.

West London.—On the 24th inst. the evening was devoted to Mr. H. N. King's paper on the Royal Palaces of England, illustrated by over 100 lantern slides, the quality of which evoked great admiration.

West Surrey.—At the meeting held on the 25th ult., Mr. James in the chair, Mr. Winsford read a paper, entitled "A Trip with the Camera amongst the English and Welsh Mountains," illustrating same by lantern slides. It was evident that something good was expected from Mr. Vice-President Winsford, from the number present, viz., 137. This is the largest attendance ever recorded by the society at an ordinary meeting, and the expectation of the audience was satisfied to the utmost. Mr. Winsford not only showed pictures of the various spots traversed, but delighted his hearers by detailing items of historical interest, which give so much charm to a lecture of this description. About eighty slides were shown, some of which were made by Miss Winsford and many were from negatives by the same lady.

Woolwich Polytechnic.—A meeting was held on the 23rd ult., Mr. Dresser in the chair. A very successful demonstration of the use of Amidol as a developer for both plates and papers was given by Mr. Morgan, representing Messrs. Fuerst Bros. Mr. Dresser, who also spoke very highly in favour of Amidol for developing papers, exhibited a number of 30 by 22 enlargements he had developed with it.

* * *

SOCIETIES' FIXTURES.

Feb. 2.—HULL.—Photographic Society of Great Britain.
,, 2.—LIVERPOOL (A. P. A.).—"Lantern Slide Making," Mr. E. M. Tunstall.
,, 2.—LONDON AND PROVINCIAL.—Special Lantern Evening, "Norway and its People," Mr. S. J. Beckett.
,, 2.—CAMERA CLUB.—Lantern Evening.
,, 2.—LEIGH.—"Emulsion," Mr. T. Haddock.
,, 2.—STOCKTON.—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
,, 3.—BRIGHTON AND SUSSEX.—"The place of Photography in Art," Mr. George de Paris.
,, 3.—HOLBORN.—Lecture by Mr. A. Horsley Hinton.
,, 6.—RICHMOND.—Lantern Evening.
,, 6.—N. SURREY.—Mr. T. J. Bright.
,, 6.—S. LONDON.—"The Comparative Advantages of Wide-angle and Tele-photographic Lenses," Mr. J. H. Dallmeyer.
,, 6.—KENSINGTON AND BAYSWATER.—Lantern Lecture, "The Use of a Hand-camera," Mr. A. R. Dresser.
,, 6.—PUTNEY.—"Making Lantern Slides, etc.," Lecture and Demonstration by the Paget Co.
,, 6.—CAMERA CLUB.—Smoking Concert.
,, 6.—WOOLWICH POLYTECHNIC.—"Practical Methods of Making Enlarged Negatives and Prints," Mr. F. W. Edwards.
Feb. 6.—OXFORD UNIVERSITY.—Peak and Dale slides.
,, 7.—W. LONDON.—Technical Social Meeting.
,, 7.—NEWCASTLE-ON-TYNE.—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
,, 7.—BIRMINGHAM.—Lantern Night.
,, 7.—HEREFORDSHIRE.—"Bromide Enlargements and Contact Printing," Mr. J. Parker.
,, 7.—BOLTON.—"Printing and Toning Gelatino-Chloride Paper," Mr. J. S. Roscow.
,, 7.—LIVERPOOL CAMERA CLUB.—Ordinary Meeting.
,, 7.—OXFORD.—"Platinotype Process," Mr. J. B. Wollaston.
,, 7.—BRIXTON AND CLAPHAM.—"The Optical Lantern, with special relation to Ether Light," Mr. B. E. Pinder.
,, 7.—THE PHOTO CLUB.—Members' Open Night.
,, 7.—EASTBOURNE.—Dr. H. Habgood.
,, 8.—WAKEFIELD.—Social Evening.
,, 8.—STOCKPORT.—"Mexican slides," Mr. W. Thompson, F.C.S.
,, 9.—LIVERPOOL (A.P.A.).—"The Chemistry of Photography Chas. A. Kohn, Ph.D., B Sc.
,, 9.—OLDHAM.—"Gelatino-Chloride Printing, etc.," Mr. W. Thompson.
,, 9.—ELIZABETHAN.—"Barnet, Old and New, and Barnet Fair," Messrs. Matthews and Samuels.
,, 9.—ASTON.—"How to Develop on Tour," Mr. W. Tylar.
,, 9.—LONDON AND PROVINCIAL.—First technical lecture of the series: "The Lens."
,, 10.—GLASGOW HIGH SCHOOL.—Lantern Evening.
,, 10.—HALIFAX.—"Landscape Photography," Mr. Jones.
,, 10.—HOLBORN.—"Cloud Negatives, and how to take Them."
,, 13—HEXHAM.—"AMATEUR PHOTOGRAPHER" 1892 Prize Slides.
,, 13—ROCHESTER (Naturalists') — "Exhibition of Monthly Competition Slides," *A. P.*
,, 15—BLACKHEATH.—Members' Lantern Night.
,, 16—HULL.—Slide Exhibition and Social Evening.
,, 16—LEIGH.—"Peak and Dale" Slides, lent by the "AMATEUR PHOTOGRAPHER," Mr. W. R. Moore.
,, 20—YORK.—"AMATEUR PHOTOGRAPHER" 1892 Prize Slides.
,, 21—BIRMINGHAM PHOT. SOC.—"A Recent Visit to Egypt," Mr. J. J. Button.
,, 22—THE PHOTO. CLUB.—Monthly Lantern Meeting.
,, 22—STOCKPORT.—"AMATEUR PHOTOGRAPHER" 1892 Prize Slides.
,, 23—OLDHAM — "AMATEUR PHOTOGRAPHER" 1892 Prize Slides.
,, 23—LIVERPOOL (A. P. A.).—Lantern Lecture on "Ireland,' Mr. Fred. Clibborn (Slides by Mr. G. E. Thompson).
,, 24.—HOLBORN. — Lantern Exhibition of Views in "The Channel Islands," Mr. E. H. Bayston.
,, 25.—HULL.—"Lantern Work," Dr. Walker.
,, 27.—CROYDON.—"National" Competition Prize Slides.
,, 28.—W. LONDON.—"Round West London with Cycle and Camera," illustrated by Lantern Slides; Messrs. Stein and Varden.
,, 28.—BIRMINGHAM PHOT. SOC.—Lantern Night.
,, 28.—HEREFORDSHIRE.—Last day for receiving slides for competition.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer questions by post.

QUERIES.

5919. **Colouring Print.**—Would any of your readers tell me how to colour silver prints, transparently in water colours, and what medium should be used so as not to damage the print, and oblige.—STAG.

5920. **Compact Tripod.**—Could any one tell me if there is such a thing made as a small camera stand that could be strapped on to the side of a No. 4. Regular Kodak, and when doubled up be not more than 15 in. long? It would be useful to me if, when open, it only stood 15 in. high. Or who would be the best people to make one to my design?—JOE.

5921. **Changing Bags.**—Will someone kindly say, from experience, which is the best for practical use and security?—GRAPHO.

5922. **Colouring Prints.**—Can any of your readers tell me which is the best preparation or process for colouring photographs with water colours?—AMATEUR.

ANSWERS.

5902. **Backing Plates.**—This term means that the back of the plate is coated with some non actinic colour or paper, so as to prevent reflection from the glass. There are several backing papers in the market which are satisfactory.—O. G.

5903. **Lens.**—Unless a rapid wide-angle lens works at a larger aperture than a combination wide-angle lens there is absolutely no advantage.—O. G.

5908. **Focus Power.**—The shorter the focus of the lens, the greater the distortion of perspective or strain when used at close quarters, and the results are not so pleasing as when longer focus lenses are used. With a Dallmeyer 3 D of 10½ in. focus to obtain 2¼ in. heads, which means reducing to one-fourth, you would have to be 4 ft. 6 in. from sitter, and the focus would be lengthened to 13in., and probably there would be strain, and the front and back of head in full face would not be in focus.—EDITOR.

5909. **Leather Cover.**—Either Platt and Witte or Park would cover your camera for you.—EDITOR.

5910. **Development.**—A great deal depends upon what plates are used, as some require to be developed more than others. Experience is the best guide, but if you like to send up some negatives we will tell you as to whether they are correct.—EDITOR.

5912. **Pyro Tabloids.**—The accelerator was added too slowly, the image should come out in about 40 sec. and be finished in about 5 min.; mine are, at any rate.—POLK.

5918. **Hawarden.**—The history of Hawarden Village, Church, and the Glynne family (Mrs. Gladstone's) is very lengthy and exceedingly interesting, and it is impossible in the space at command in our "Queries" column to give a satisfactory reply. If "Oak" will write to Messrs. Phillipson and Golder, Eastgate Row, Chester, enclosing 1s. 6d. in stamps, they will supply him with "The Hawarden Visitors, Hand-Book," which contains portraits of Mr. and Mrs. Gladstone, many fine woodcuts, and traces the history of this interesting and quaint village from the early days.—W. CHADWICK.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week This we much regret.*—Ed. Am. Phot.

G. H. Morgan.—We always endeavour to classify prints and slides, but occasionally pressure of work prevents us from doing so. This week we have fallen in with your suggestion.

R. E. D.—No. 1 is the most portable, but we should choose No. 6 for your work.

J. E. Stack.—Sell the camera you have and buy a stand camera. If you want further information you must let us know what size you want, and how much you are prepared to spend.

Nemo.—Either a Crouch, Wray, Taylor, or Beck 5 in. R.R. would suit the camera you name.

L. G.—(1) A bath made up on the lines you suggest can be prepared as follows :—

1.

Sulphocyanide of ammonia	30 gr.
Acetate of soda	10 ,,
Distilled water	4 oz.

2.

Chloride of gold	1 gr.
Carbonate of soda	10 ,,
Distilled water	1 oz.

It would be advisable to keep No. 1 as a stock solution, and add No. 2 as required, and you can also keep the chloride of gold in a stock solution by dissolving a 15 gr. tube of gold in 15 drachms of distilled water, and just before use adding the soda to a drachm of this solution, and then adding to No. 1 in the above proportions. The prints should be well washed prior to toning, and the toning bath may be kept and fresh gold added before using next time. (2) The Ilford soda developer contains practically 3½ gr. of pyro, 22 gr. of washing soda, 22 gr. of sulphite, ½ gr. of bromide per oz., therefore in 10 per cent. solutions the formula will read—

Pyro solution	35 minims.
Soda	220 ,,
Sulphite	220 ,,
Bromide	5 ,,
Water up to..	1 oz.

H. S. G.—(1) We duly received your plate and literally poured it out on to a sheet of paper, it having been smashed to atoms in transit. We were able, however, to find a bit large enough to see the markings, which may arise from one of two causes, viz., not washing the plate between the developer and the alum bath, or between the alum and hypo baths. If the negative is not thoroughly washed after developing, the alkali in the developer will decompose the alum, and if washing is not thorough after the alum this will decompose the fixing bath, in both cases a precipitate being formed in the film. (2) We should strongly advise you to try amidol in preference to hydroquinone if you do not care to use pyro. Try it, at any rate. (3) You will see a note in "Our Views" this week which will answer this for you.

P. Ennis.—Many thanks for paper, which will duly appear.

B. T. Harlow.—At present the matter is under consideration, and our publishers will write you should any decision be arrived at.

H. Newson.—Many thanks for letter. Cracked slides have been replaced by whole ones. Your suggestions shall be considered.

C. F. Bradfield.—So far as we know, there are very few French books on art in relation to photography. Gauthier-Villars et Fils, 55, Quai des Grands Augustins, Paris, have published "La Photographie des Peintres, des Voyageurs, et des Touristes," by Pelegey (1885), price 1fr. 75c., and "La Photographie Artistique," by Pierre Petit (1883), 1fr. 25c. And there is no French journal which devotes more space than another to art. Send unmounted prints for criticism. The best way is to pack between stiff cardboard or mounts and send by book post. Always pleased to help you as far as we can.

A. P. Speakman.—Thank you for the compliment conveyed in your letter. We had in mind Klary's work. The only other works on the subject, and we have not seen them, are "La Photographie à la Lumière du Magnésium," by Eder (1890); "Praktische Anleitung zum Photographiren bei Magnesiumslicht," by Gaedicke and Miethe (1887); "Ueber Blitz Photographiren," by Kayser (1885); "Ueber die Bedeutung und Verwendung des Magnesiumlichtes," by Müller (1889); "Die Beleuchtungs Magnesium Licht zur Photographische Zwecken," by Schirm (1888); "Photographisches Blitzlicht," by Schnauss; and "La Photographie la Nuit," by Mendoza (1892) This last we have, but Klary tells you more.

Constant Reader.—We believe that both the companies selling the machines you ask for are in liquidation. Anyhow, we have much pleasure in giving you our advice; that is, let the whole thing severely alone unless you have plenty of money to throw away on what must be a dead failure.

A P.—Letter by post.

C. Moss.—You can compete again, but if first, would only receive a clasp.

G. P. S. Scutt.—Your letter was overlooked from having been enclosed with competition print, which was duly entered. The simplest way to intensify a negative is by bleaching with mercury bichloride, washing well and blackening in ammonia. You must chose your colours to suit your prints. Some look well in dark-brown frames, others in white, and so on.

Instantograph.—(1) We regret that it is impossible to say which is the best plate in the market. All are good, but one may be more suitable than others to your style of work. (2) We always use the American standard, and like it—

Carbonate of soda (pure)	1 oz.
,, ,, potash	1 ,,
Ferrocyanide	1 ,,
Distilled water	to 10 ,,

Use ¼ oz. of this for half-plate. (3) There is no easy, certain method of removing silver stains. (4) See our correspondence column this week (5) Fitch, 34, Angell Road, Brixton, will supply celluloid, but price we do not know. (6) Amidol. (7) No; both are printed too deep and lack artistic qualities. Always pleased to help you as far as we can, only please write one side of the paper only.

R. B. K.—You know, of course, that there is nothing new in getting a relief. If you like to write in confidence and tell us how you go to work, we may be able to tell you whether it has been done before and whether it would be useful.

Magazine.—No, we have had no article on that subject.

J. Broughton.—It is as good as can be got anywhere for the money.

Mona.—(1) Wants intensifying with mercury and sulphite, or you might fasten a bit of papier minéral on the back and work over the whole of the lower. (2) Intensify with mercury and ammonia. (3) Print in a weak light on chloride paper, or use tissue paper. 4, 5, 6, 7, and 8 should give good prints, though nearly all want tissue paper and stump or yellow paint over the landscape, leaving the sky. (9) Wants stump and tissue paper. (10) Developed with hydroquinone or eikonogen, and wants intensifying with mercury and sulphite. (11) All the landscape except the water wants stump working. 12, 13, and 14 should all give good prints, on chloride, platinotype, or bromide. Many of your prints were evidently over-printed or printed in too strong a light. You have some charming results which are fully up to competition standard. If you cannot get better results you might send us up one or two films and prints, and we will print against you and show you how to do it.

W. Blye.—Cotton wool is used in printing for obtaining great softness in vignettes. An opening is cut in a card, which is fastened to the front of printing frame, and then cotton wool is gummed loosely to the card and pulled out over the edges of opening.

Nemo.—(1) Probably you could obtain the black or Claude-Lorraine mirror from Caplatzi, Chenies Street, Tottenham Court Road, but the price we do not know. It could be made from a piece of plate glass blacked on the back with any bright black varnish. (2) The booking fee for prints is 1s., and carriage has to be paid both ways. (3) There is no best hand-camera on the market. You must state your limit of price.

Jay Hey.—Mawson and Swan, 33, Soho Square, quote for ferric oxalate in scales at 16s. per lb.

J. H. F.—Probably Payne Jennings used the carbonate because it was handy, but we quite agree with you that it is never prescribed.

B. Brandeth.—(1) Black tones are by no means easy to get—they require deep printing and very strong platinum baths, and then they come very expensive. You might try deep printing, and the old uranium and gold bath :—

Chloride of gold	4 gr.
Uranium nitrate	4 ,,
Salt	60 ,,
Acetate of soda	60 ,,
Distilled water	20 oz.

Neutralise the gold and uranium with carbonate of soda, wash your prints quite free from silver, and wash in salt and water after toning and fix in—

Hypo	2 oz.
Salt	1 ,,
Bicarbonate of soda	¼ ,,
Water	20 ,,

(2) Yes, you can get rough-surface platinotype. (3) Mezzotype properly worked will give equally fine results and a greater range of colour, which is an advantage. (4) Your hoar-frost scenes are good, but you have lost the fine detail in the frost; this is due to not printing deep enough. (5) Yes, it is safer to over-expose. (6) No, we cannot explain the curious vagaries of your toning bath. We hope to have an article on platinum toning generally. (7) For landscape work we always use pyro and soda, for portraiture, hoar-frost, and when great variation of developer is desired then we use ammonia, and never use sulphite. No, we don't see how you can improve your developer. (8) We prefer No. 1 mezzo—a really good thing; and No. 2 in mezzo has a little more luminosity in the shadows than the black one, although it has lost more in the details. No. 4 in mezzo is decidedly the best of the bunch, and ought to take one of our medals.

E. Tiby.—Nearly all your work is characterised by unusual artistic merit, and we should much like to see it all on rough-surface paper. We have numbered the prints, and point out what we think as faults. (2) The bank on left too black. (3) Ditto on right. (5) Little too black on left. (6) The sky alone true; the ground much too black. (8) Too patchy. (9) Sheep too black. (10) Taken wrong way of plate. (11) Disappointing, nothing in it. You are rather inclined to print too deep. If you were to print on rough paper and send it to our competitions we do not think there is any doubt of your gaining a medal. We have rarely, if ever, seen hand-camera work of such quality.

W. T. Hawthorn.—You are perfectly right; the bronze should be supplemented by silver and gold, and we will forward them at once—when you win them, which we hope will be soon.

P. O. P.—Yes, you can take a full-length standing figure on a quarter-plate with a whole plate lens, only, of course, you will have to place the camera further off.

Carlos—Your query is inadmissible. If you will state limit of price and whether magazine, etc., we may be able to help you by letter.

R. H. Michie.—Letter by post.

J. B.—You can use both the meta-bisulphite and the pyro solution, the only disadvantage of it being that you will have to add considerably more alkali to neutralise the free sulphurous acid. The pyro certainly should be reduced; this was the original idea in Edwards' paper and the way we have always used it. Amidol is the only developer which can, we think, be left to itself as you suggest. The film can be mounted either side so as to reverse negative, but it is advisable to give plates a substratum of gelatine and chrome alum to make it adhere. Rippingill has an oil stove, which is, we think, No. 131 in their list, and this, fitted with ruby glass front, costs about 10s. 6d., and is quite safe.

Botany Bay.—We are afraid the stand would be rather shaky with a heavy camera, but you might have an ordinary head fitted to it. With regard to the hand-camera you could, of course, have a cheap lens and shutter fitted, but we do not think this advisable. Have you no lens that can be fitted?

W. E. A.—Yes; the formula we gave you was used for the brown tone you admire. Any of the commercial bromide papers of the rapid kind are suitable for enlarging, and amidol or ferrous oxalate will give you good results. You cannot get a true sepia on chloride paper.

Trafford.—A lubricator made by dissolving 5 gr. of castile soap in 1 oz. of methylated spirit should be rubbed over the print, allowed to dry, and then the print passed through the burnisher, the bar of which should be as hot as the hand can comfortably bear.

Spen Glazier.—Try Hopkins and Williams, Cross Street, Hatton Garden, E.C. The price we do not know.

Fdree.—It would be advisable to copy the engraving about quarter-plate size, using the largest aperture that will give you satisfactory definition. Use a slow plate, and if you wish to copy by night you could, and the exposure would probably be about 20 to 30 minutes.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence.*** *Every additional three words,* ***one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one word;*** *compound words count as* ***two words.****)*

Cameras, etc.—12 by 10 camera, with three Tylar's metal slides, in good condition, a bargain, £3; or will exchange for portrait lens to cover whole-plate.—G. Brown, High Street, Ibstock, near Ashby de-la-Zouch.

Cameras, Lenses, etc.—Lancaster's quarter-plate Instantograph, complete, three double slides, leather case, etc; cost £3 10s., cash price £2 10s., carriage paid.—X., Herbert Watts, England's Lanes, Gorleston.

1890 half plate Instantograph lens, shutter, adjustable diagragms, 12s. 6d.—Godley, Killegar; Killeshandra, Ireland.

Optimus 6 by 5 R.R lens, new, 35s., "Photographs of Year," unsoiled, 5s.; three half-plate Tylar's double metal dark-slides, 7s.; quarter-plate instanto. lens, 10s.; home-made quarter-plate camera, 7s. 6d.—W.G. Perks, Clevelands, Walthamstow.

Enlarging Apparatus.—An opportunity not to be missed. Lancaster's combination Multum-in-Parvo, 18 by 16 enlarging camera, perfectly new, with full double set of carriers, from 15 by 12 to lantern size, never been used, cost complete £6, sell for £4 15s.—Apply Messrs. Adams and Co., 26, Charing Cross Road, London, where the camera may be seen.

Hand Cameras, etc.—Fallowfield's Facile hand-camera, R. R. lens, in splendid working order £2 10s.—William Winch, King's Lynn.

Everybody hand-camera, lens, and three slides as new; No. 1 Demon camera; small magic-lantern two lamps, 3 in. condenser, no front lens, thirty-six coloured pictures, Dick Whittington, etc., £1 the lot. —E. Tully, 104, London Road, East Grinstead, Sussex.

Stereoscopic Company's Artist's twin-lens hand-camera, 5 by 4, perfect condition, three extra double backs, leather case, price list £18 11s. 6d., take £10, or Fallowfield hand camera in part exchange; approval; deposit.—No. 366, office of this paper, 1, Creed Lane, E.C.

Facile hand-camera, Champion washer, three printing frames, £3.—Camera, 19, Sherborne Road, Yeovil.

No. 3 Kodak Junior, latest improvements, with thirty unexposed films, as new, £5 5s., or offers.—W., Art Club, Liverpool.

Houghton's automatic hand-camera, carries twelve quarter-plates, Thornton-Pickard shutter, automatic changer, rapid rectilinear lens, compact instrument, 9½ by 5½ by 4¾, has done good work, cost £6 6s., sell £4 10s.—J. B. Hartnees, 25, Lushington Road, Eastbourne.

Lamp, etc.—Large dark-room lamp, red and yellow screens, interchangeable, burns gas, good as new; also metal lantern, with 4-in. condenser, and lens, in case. What offers?—Further particulars by letter, B., 15, Madeira Road, Streatham.

Lantern Slides.—Coloured effect slides—Christmas Carol (2), cost 21s., for 8s. 6d.; ditto, Sailor's Dream (2), cost 15s., for 6s. 6d.; four chromotropes, cost 42s., for 21s.; five brass lever slides, cost 27s. 6d., for 12s. 6d.; nine comic slipping slides, 4s. 6d.; two slides, "Welcome," and "Good Night," 1s 6d.—Fuller, chemist, Norwich.

Lenses, etc.—Ross' No. 2 portable symmetrical lens, splendid condition, £2 10s.—Rover, 111, Shakespeare Road, Herne Hill, S.E.

Sets.—£12 will purchase the following high-class apparatus: Watson's Acme camera, 13 by 18 cm. (7 by 5¼), all possible movements, double extension, three double dark slides, turntable, three-fold tripod, stand, instantaneous and time shutter, Ross' whole-plate rapid symmetrical, whole-plate wide-angle lens, waterproof case, splendid condition, cost £21.—Address, Robert Teglio, Mevagissey, Cornwall.

Lancaster's half plate Merveilleux, splendid landscape lens, stand, and three Lancaster's double metal slides with adapter. Nearly new, 35s.—Stansby, Rawtenstall, Manchester.

Half-plate set, two lenses, and cost over £20. Whole-plate adapter with two backs to fit any good half-plate camera, whole-plate R. R. lens, half-plate Euryscope, Furnell's shutter, 4¼ condenser, and mixed jet. All by first class makers and equal to new.—B. J. Grover, 38, Woodberry Down, N.

First class camera taking 5 by 4 or quarter-plate, Marion's lens, three double backs, and folding stand; owner giving up; sacrifice, 38s.—Mr. Woodcock, Thorncliffe Lane, Chapeltown, Sheffield.

Sundries.—Twelve vols. of "Amateur Photographer," 1887-92, 10s.—Rectory, Bradford Peverell, Dorchester.

Studio, 18 ft. by 10 ft., and dark-room, all wood and new, made to take down; also pedestal, gate balustrade, and camera stand, five back-grounds, the lot, £13 10s.; plate sunk mounts, 24 to 19, 5s. per doz.—J. Broadbelt, 5 Lyon Street, Shaw, Lancashire.

WANTED.

Enlarging Apparatus.—Condenser. Wanted, 5½ in enlarging apparatus condenser. Lowest terms to D. Mackay, County Bank, Thurso, Caithness.

Lantern Apparatus.—Wanted, Wray's 6-in. lantern lens, also washing lantern screen, 9 ft.—Jackson, Fleet Mills, Oulton, Leeds.

Lenses, etc.—Wanted, good quarter R. R. lens, Optimus preferred.—Moverly, 4, Almond Street, Leeds.

Wanted, 5 by 4 rectilinear and whole-plate landscape lens; exchange; approval.—Nicholls, Cove-Waterford.

Sets.—Wanted, good half or whole camera set, with or without lens. Cheap, approval.—Liver edge, 90 Selborne Street, Liverpool.

Wanted, half-plate set, must have good lens.—Huband Sutton, Bonnington, Loughboro.

Wanted, half-plate Ruby set, latest pattern.—E. Phillips Bridge Street, Leatherhead.

Shutter, etc.—Wanted, Thornton-Pickard shutter, time and instantaneous, speed indicator, Hood 2·1-8th; approval, cheap.—McMurdo, Bellshill, Scotland.

Backgrounds.—Wanted, two backgrounds, exterior and interior; send photo and particulars.—Geo. Barrow, 19, Canton Street, Liverpool,

Bargains in Hand Cameras.—Talme, No. 3 hand-camera, fitted Euryscope lens, iris stops time and instantaneous shutter, adjustable focus, two large finders, bag changing, carries 12 quarter-plates, £4 15s.; Fallowfield's Facile, carries 12 quarter-plates, good lens, shutter, etc., finest condition, £2 12s. 6d.; Optimus detective camera, Optimus rapid rectilinear lens, time and instantaneous shutter, adjustable focus, three double slides, covered leather, two finders, finest condition, £4 5s.; No. 4 regular Kodak, fitted rapid rectilinear lens, time and instantaneous shutter, adjustable focus, two finders, carries 100 films, £6 15s.; No. 1 Kodak, best order, rapid rectilinear lens, shutter, etc., carries 100 films, in leather case, 37s. 6d.; "Ideal," by Adams, rapid rectilinear lens, time and instantaneous shutter, two finders, carries twelve quarter-plates, covered leather, £4 4s.; Radial hand-camera, by Marion, fitted Soho R.R. lens, shutter, focussing, carries twelve quarter-plates, in Marion's leather, as new, £5 16s. 6d.; "C" Daylight Kodak, rectilinear lens, time and instantaneous shutter, two finders, focussing, covered leather, carries forty-eight 5 by 4 films, as new, 75s.; Adams' Otto hand-camera, good lens, two finders, shutter, etc., carries twelve quarter-plates, covered leather, as new, 35s.; "A" Daylight Kodak, as new, good lens, shutter, finder, covered leather, as new, 25s.; Houghton's Automatic hand-camera, guaranteed as new, rapid rectilinear, rotating stops, Thornton-Pickard shutter, carries 12 quarter-plates, fine camera, £4 10s.; Talmer hand-camera, carries twelve quarter-plates, fine portrait or view lens, shutter, finder, bag changing, etc., finest condition, 47s. 6d.; Optimus Magazine, very finest order, Optimus rapid rectilinear lens, carries twelve quarter-plates, roller blind, shutter, focussing adjustment, £5 5s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Dallmeyer 10 by 8 No. 3 rectilinear landscape, patent, grand definition, covers well, Waterhouse stops, 13½ in. focus, £4 17s. 6d.; whole-plate wide-angle lens, by Clement and Gilmer, Paris, rotating stops, 7½ in. focus, 30s.; Optimus portable symmetrical, size 9 by 7, rotating stops, covers well, works *f*/11, as new, 65s.; 9 by 7 Optimus rapid Euryscope lens, Waterhouse stops, movable hood, grand definition, as new, £5 5s.; whole-plate portrait lens, Waterhouse stops, rack focussing, covers well, as new, 65s.; Lancaster's half-plate Silver Ring rectigraph lens, as new, guaranteed, in leather case, £2 7s. 6d.; Ross' No. 4 portable symmetrical, 6 in. focus, finest order, rotating stops, 63s.; Shew's No. 2 rapid wide-angle lens, rotating stops, as new, warranted, £2 7s. 6d.; half-plate Lancaster's rectigraph lens, thorough order, covers well, Waterhouse stops, take 32s. 6d.; half-plate Lancaster Instantograph lenses, iris stops, and instantaneous shutter, 15s.; Dallmeyer 5 by 4 wide-angle landscape, rotating stops, 5¼ in. focus, as new, 50s.; Ross' No. 2 concentric, 4in. focus, rotating stops, as new, 60s.; Ross No. 2 c.-d.-v. portrait lens, Waterhouse stops, rack focussing, finest order, £4 4s.; quarter-plate wide angle rectilinear, by Laverne, 4 in. focus, rotating stops, as new, 17s. 6d.; 5 by 4 Optimus rapid rectilinear, by Perken, Son, and Rayment, Waterhouse stops, 27s. 6d.; Swift 5 by 4 wide-angle rectilinear, 5 in. focus, rotating stops, 32s. 6d.; Ross's portrait lens, c.-d.-v., rack focussing, Waterhouse stops, grand definition, £3. All above lenses are warranted as described.—On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Every description of apparatus bought, sold, or taken in exchange.

Bargains in Cameras and Sets.—10 by 8 camera fitted all latest improvements, back and front extension, for wide-angle pictures, leather bellows, reversing back, rising and falling front, two double slides, grand condition, take £6 10s. lot; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three fold stand and case, lot as new, £11 5s.; Morley's 7½ by 5 patent camera, double extension, leather bellows, rising and panel front, swing back, three double slides, Morley's 8 by 5 rapid rectilinear lens, Waterhouse stops, folding tripod and case, £6 12s. 6d.; rapidograph half-plate camera, by Perken, Son, and Rayment, double extension, leather bellows, reversing and swing, three double slides, fine rapid rectilinear "Leviathan" lens, iris stops, grand definition, three-fold stand and case, £6 17s. 6d.; half-plate Underwood's Instanto camera, leather bellows, square wide-angle movement, rising, falling, and cross fronts, double dark slide, quarter carrier, rapid rectilinear lens, Waterhouse stops, and folding stand, £3 17s. 6d.; half plate "Duke" camera, double extension leather bellows, rising, falling, and panel front, back and front extension, two double slides, metal division, rapid rectilinear, Waterhouse stops, and folding stand, as new, £6 5s.; half-plate 1892 instanto camera, all latest improvements, double extension, leather bellows, etc., double slide, quarter carrier, very fine rapid rectilinear lens, and folding stand, set complete, 75s.; quarter-plate Lancaster Le Meritoire set, complete, camera, lens, two slides, and stand, best condition, 27s. 6d.; quarter-plate Underwood's Convention set, camera, lens, two slides, and stand, best order, 32s. 6d.; quarter-plate Le Merveilleux set, by Lancaster, complete, 15s.; quarter-plate extending camera, best order, good lens, two double hook-form slides, and folding stand, 17s. 6d. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

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The Amateur Photographer

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Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

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OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 till 5 o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from 10 till 1 o'clock.

Our Views.—Bleaching Light — Fixed Focus —"The Practical Photographer" and H. P. Robinson—A "Spook" Photograph—The Spook like Caprivi—Its Meaning—The Blackheath Camera Club Exhibition—The Forfar Exhibition—Coating Two Miles of Paper—A Claude Mirror—National Sportsman's Exhibition—Cresco-Fylma Competition—Camera Club Conference—The Question of Awards—Photographs of Candidates—Photography and Physiognomy—Photography Forges Cheques.

Leader—Anachronisms in Photography.

The A B C of the Lantern.

Articles.—Photography in its Relation to the Art of Printing (Alabaster)—Experiences (Brown)—Elliott and Son's Exposure Tables—Photographic Study of the Sun (Hale)—A Cheap Enlarging Camera (Wilson)—Photographic Lens Testing at Kew (Darwin)—General and Photographic Chemistry (Conrad)—A Chemical Study of Mercurial Intensification (Chapman Jones)—Making Lantern Slides at Night (Eidemiller).

Catalogues.

Societies' Notes.

Exhibitions.

Letters.—An Anachronism (Huggins)—A Dark Room Query (Fred) Eureka (Crichton)—A Notice (Smith).

Societies' Meetings.—Barrow—Bath—Birmingham—Croydon—Camera—Douglas—Glasgow—Hackney—Halifax—Harringay—Kensington and Bayswater—Leeds—Lewes—Leytonstone—Liverpool A.P.A.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Lantern-Slide Competition, No. 44.—Latest day, February 11th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, February 24th, 1893.)

In a work on "Elementary Physiology for Students," by Alfred T. Schofield, M.D., M.R.C.S., etc., which is issued by Cassell and Company, the author, writing on the eye, states that "as an optical instrument the eye is best compared to a photographic camera. The eyelid forms the cap, which being lifted up, the light from the object streams in through the lens and passes across the dark chamber *to be bleached upon the sensitive plate* behind, which in the eye is the retina." This is somewhat curious. We must confess that we were not aware that light was bleached on the sensitive plate.

* * *

Further on in the same chapter the author states that "all rays of light from over twenty feet are parallel"—a statement again open to question. And by reference he assumes that it is not necessary to focus with a lens for any object more than twenty feet distant, as he says "all objects less than twenty feet from the lens have to be focussed in the camera by moving the lens (by a screw) further from the plate as the principal focus is lengthened." If, of course, the author is talking of lenses of exactly similar focus to the lens of the eye, then he is right, but as no such statement is made, but merely a generalisation, it is hardly correct.

* * *

In a speech made by Mr. Chamberlain in the House of Commons on the 2nd inst., during the debate on the address, photography was introduced as a simile, for he said he "imagined that the policy of the Government was something which might be called a resultant of forces, or perhaps the illustration would be better if he compared it to a composite photograph, in which the faces of Lord Rosebery and the Chancellor of the Exchequer, and of the member for Waterford and the Chief Secretary for Ireland were all blended in one harmonious whole." We wonder whether Mr. Chamberlain is an amateur. Certainly the simile is apt, and tickled the honourable members present, for the remarks were greeted with laughter.

* * *

Our contemporary, the *Practical Photographer*, has in its current issue expressed an opinion which is certainly very widely felt. The Editor says:—

"Wanted! A Candid Friend.—Surely it is time that some of Mr. Robinson's true friends told him how his attitude towards the P. S. G. B. is regarded by the bulk of photographers. If we respected and admired Mr. Robinson less we would not refer to the matter. As each of his recent articles has appeared, we have hoped, for his sake, that it contained the last of his sneers; but it seems not so. Like many others, we believed that Mr. Robinson's strong point was dignity, combined with fair magnanimity, but he is rapidly forcing us, against our wishes, to believe that he lacks both. As a friend said recently, 'there is only one man who can ruin Robinson's reputation, and that man is doing all he can in that direction. That man is Robinson himself.' We have refused to give an opinion on the exhibition quarrel, therefore our remarks are not partizan. If there were a straight fight—one man against the P. S. G. B., or one man against the world, we should feel inclined to support the one man; but there is no fight. The mutterings in American papers are Samson gambols making sport for the Philistines, and look to outsiders like the efforts of a fledged bird to foul the nest it came from. At present Mr. Robinson is saddening his friends and amusing his enemies—and it is much to be regretted when any strong man places himself in that position."

* * *

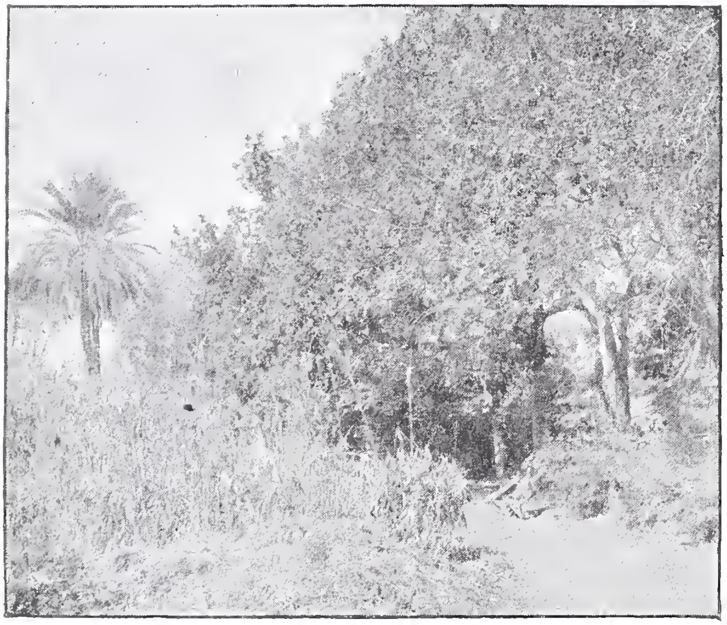
EVEN as late as last week Mr. H. P. Robinson, in an article in a contemporary, goes out of his way to misrepresent an unfortunate, and to the perpetrator by no means creditable, occurrence at this year's exhibition.

* * *

IN the same article Mr. Robinson attacks us in a very thinly-veiled manner, and in this he does not quote us correctly, therefore we shall not reply.

* * *

NOW that psychic and spirit photographs are all the rage we present our readers with an awful example of "spook" photography. Luckily, the gentleman who kindly sends us this is not a believer in "omens, spooks," etc., or else he might well be startled to find on his negative developed quietly at home the representation of the fearful-looking skull which impressed itself on the plate in Algeria.



* * *

A CLOSE examination will reveal that the "spook" has spectacles on and a white moustache, and it reminds us somewhat of Count Caprivi or Bismarck.

* * *

WE hope this has no spiritualistic political meaning, and that it is not an omen that Germany will turn France out of Algeria. Perhaps some of our friends who indulge in spirits—we mean, of course, psychic, not vinous spirits—will inform us on this point, and read the omen aright.

* * *

THE Blackheath Camera Club Exhibition, which is to take place on March 3rd and 4th, is to be run on lines which certainly commend themselves as reasonable, and as they have instituted a special championship class for any subject, any process, and open only to pictures that have taken first and second class prizes in any previous exhibition, they should have a good show. We note that journal prizes do not count.

* * *

THE Forfar Photographic Exhibition is to take place in May, not April, as previously arranged. Mr. W. J. Anckorn, West Park, Arbroath, will be pleased to give all particulars.

* * *

WE understand that a National Photographic Exhibition will be held at the Crystal Palace, opening on Monday, the 10th of April, and remaining open until the 29th. The exhibition will be under the joint management of S. G. Buchanan Wollaston and Mr. Chas. W. Hastings.

* * *

WE hope to be able to give full details next week, and it should be a success under the management of two such energetic gentlemen.

* * *

THE PLATINOTYPE Co. have for some considerable time, owing to the great demand for their paper, been put to a great strain to keep up the supply, and so determined to run one of their machines continuously, night and day. The machine was started on Thursday morning, and by Friday morning they had coated, in one continuous length, without a single break, TWO MILES OF PAPER. We think this is a record. It may amuse some of our readers to try and calculate out how many half-plate pieces of paper can be cut from this, assuming the paper to be $17\frac{1}{2}$ in. wide.

* * *

A QUERY was addressed us last week *re* a Claude or black mirror. Mr. Kidson Taylor kindly sends us the following useful and suggestive little note:—"It may help your correspondent to know what I use in its place, the cost of which will be only a few pence, and will certainly answer very well indeed for a view-finder, giving as it does a minified image 4 in. by 3 in. It is simply an ordinary $5\frac{1}{2}$ in. by $4\frac{1}{4}$ in. crystoleum glass, which must be carefully blacked with Bates' black on the concave side, and then put between two sheets of cardboard, the top one of which has an aperture 4 in. by 3 in. cut out. The whole is then covered with morocco leather, leaving the aperture, of course; it is then quite strong, and suitable to carry in an outside breast-pocket."

* * *

THE National Sportsman's Exhibition will be held at the Royal Aquarium, Westminster, from April 24th to May 6th. A special exhibition of lenses, cameras, and general photographic apparatus will be included.

* * *

The Cresco-Fylma Company, of Surbiton, are offering through our advertisement columns, page vi, special prizes for enlargements obtained by means of their speciality "Cresco-Fylma."

* * *

IN the current issue of the *Camera Club Journal* it is announced that the Conference will be held at the Society of Arts, John Street, Adelphi. So far the programme is:—

April 11th, 8 p.m., opening of members' annual exhibition and smoking concert.
April 12th, 3 to 6 p.m., papers; 7.30 p.m., annual dinner.
April 13th, 3 to 6 p.m., papers; 8 to 10 p.m., papers.
April 14th, 8 p.m., exhibition of slides.

We shall no doubt receive full particulars in due course.

It is to be hoped the Camera Club may see their way to consider during the Conference the question of awards and exhibitions generally.

A Dr. Campbell, of Dundee, has been denouncing and ridiculing the practice, which some silly church office bearers have, of asking for photographs of candidates of vacant offices. It has been suggested that "the photographic system is suggestive of the wives and daughters of church office-bearers taking the lead in the settlement of ministers."

* * *

Certainly this is a new idea, though we can hardly agree with the construction put upon it. Although not blind followers of Lavater, yet we hold that it certainly is possible to obtain some idea of a man's character from his face. That this may also be done from a photographic print is also possible, supposing that photography does not lie or is not made to lie.

* * *

Photography has before now been used to detect forgery, but recent advices from Philadelphia, U.S.A., inform us that some expert thieves obtained a cheque for 15 dols. from a firm, and then by some photographic process produced a similar check, only for 850 dols. Unfortunately, the law stepped in, and now our expert photographers await in prison the inevitable results.

ANACHRONISM IN PHOTOGRAPHY.

From recent correspondence in these columns and continued in the present issue, it will be seen that, in the minds of many, the question as to the legitimacy of representing historical scenes by means of photography is far from settled, nor, inasmuch as photography in its application to artistic work is constantly accomplishing the unexpected and is made to successfully render many effects in nature previously regarded as beyond its pale, should any such important considerations be, so to speak, filed away as a case that is settled and beyond appeal. The mass of art knowledge is ever increasing, and general appreciation becomes more educated, so that the condemned of ignorance may become the subject of cultured admiration.

In penetrating into the regions of imagination and poetry the photographer has perhaps found his hardest task, but how far this difficulty is due to the nature of the medium he employs for the expression of his idea, and how much of it is attributable to the lack of education—artistically—and deficiency of power on the part of the photographer, is worthy of careful consideration, difficult though it may be of demonstration.

Just a year ago Mr. H. P. Robinson contributed to the defunct *Quarterly* an article entitled "Impossible Photography," wherein he quotes "the cautious humorous poet"—

"What's impossible can't be,
And *very seldom* comes to pass;"

and even if for the moment we grant the term impossible as belonging to the photographic portrayal of past historical incidents the "very seldom" suggests a narrow loop-hole which it may behove every ardent worker to exhibit his prowess in making wider.

In the article above referred to our well-known writer says of the photographer that though the infinitely little and infinitely remote are within his grasp, though he can exceed the telescope's vision, and reproduce the invisible star as well as place the microbe on the screen, yet "he cannot give us the form and body of the dead, he cannot restore King Arthur to life; and the folly of calling anybody else by that name and photographing the substitute, need not be dwelt on, were it not so often done." Too fast and far, Mr. Robinson, for a rapidly advancing age, and still more so is your italicised sentence which follows shortly after, namely, "Don't attempt a subject in which you cannot hide the art by which a model is made to look natural, *nor which compels anachronism.*" Theoretically at least we fail to see why it should be impossible to hide the art by which a model is posed, practically we admit the artificiality is always more or less apparent and damning in its influence. But there is the "more or less" qualification, which means that there are degrees of failure so widely separated as to suggest the possibility of hereafter surmounting error altogether.

In matters of art the true artist resents dogmatic utterances and the insistance of rules and conventions, and hence we incline strongly towards proclaiming an open field and no favour, prejudice, or bias for every one of genuine artistic feeling who is honestly employing camera and plate for the expression of ideas through the portrayal of typical and suggestive objects.

Figure subjects—and we refer at once to those subjects which aim at representing past events and characters, also to those subjects which illustrate scenes derived from fictional poetry and prose romance—constitute a field for the photographer which if, as we have already said, we are not prepared to regard as utterly unapproachable, is yet one so unpromising in the prospects that very stout determination is essential in the photographer who attempts where every one else has failed, and for this reason alone it is questionable whether time and labour may not be more profitably employed in those walks considered by most as more legitimately within the limits of photography.

It is now generally recognised that the highest purpose of pictorial art is not the mere mirror-like imitation of substances or the mere representation of material things, but rather the expression of a sentiment, to which end certain objects are selected and reproduced. It is equally admitted that it is not the function of art to be didactic; to teach archæological facts and physical truths is not within its province; and it appears to us that it is for want of a full recognition of these and such positions that much of the failure in the photographic portrayal of anecdote, or the reconstruction of an historical scene mainly lies.

We find that in order to construct in the studio a sort of *tableau vivant* which shall when photographed be entitled, say, "The Trial Scene in the 'Merchant of Venice'" (an ambitious theme, truly, but t'will serve), the photographer must needs set about constructing in fact and substance every detail of the locality, and make to be what as yet has only existed in imagination or on the stage. Given success in this particular, how will it be possible to procure models to suit the characters? Who shall find for us, in living flesh the great poet's ideal Portia, or when found how shall she convey all the loveliness and modest courage of the mock lawyer? And what of all the other characters? Were the painter to attempt the scene he too would re-create the circumstantial details of place, costume, etc., but each figure, each face would carry to the spectator's mind a little chapter of human character—judge and councillors indifferent in the execution of their legal duty—cringing avarice and triumph on the face of the miser plaintiff, already half suspicious of defeat—the noble debtor— But why go further in any such subject? It is the painter's gift, not only to portray an instant expression, as one might with a "snap shot," but to infuse the face with something of the expression which was there before, and a suspicion of the change that's to come, so that the compressed lips of the sitter tell of mirth suppressed which in another moment will break out into laughter and dimple the cheeks which somehow we feel have not long been strangers to coursing tears. Somewhat in this direction photography has done. Multiply it, magnify it, apply it, not to faces only, but whole figures and many of them, and the barrier to making a photographic representation of some of the simpler historical scenes seems less insurmountable.

But suppose it were accomplished and in such a manner that the most exacting critic could find no fault, there would still be a troublesome matter to overcome, or rather to outlive, and that would be the inevitable feeling that we know it *is* not what it claims to represent, that if we call the picture "Joan of Arc in Prison" everyone knows it is not, but only a photograph of an artificially got up piece—in fact, a masquerade. Here we should say that if the photographer succeeds fully and absolutely in conveying the various sentiments and ideas which any other picture of the scene would or should convey, then the feeling should be so strong as to paralyse the question.

The accomplished actor makes you forget himself, and affects you so powerfully as to cause you to be oblivious of the mummery. What photography has done in landscape requires to be done still further in such subjects as we are discussing.

The "Evening Twilight" or "Summer Breezes" may be and are often so well suggested that the spectator cares not to ask where the view was taken from or what the nature of the physical details which compose the scene. The figure-photographer, more, perhaps, certainly as much as in any other branch of the art, has to remember that the artist studies nature, models, accessories, and things, and gets from these as much as he can and then adds imagination and feeling; and it is by no means beyond hope that the photographer, with his much libelled and misunderstood apparatus, may do the like.

Because many have failed and most have set down certain descriptions of subjects as impossible, goes for nothing. Accept no man's dictum until you have proved it, and even then admit that another coming after may find success where it has escaped you. If landscape, mountain, sea, or river does not sufficiently appeal to your sympathies, by all means try genre and, after that, imaginative subjects but remember they have got to be done in a very different manner to what has already been effected.

Letters to the Editor.

AN ANACHRONISM.

SIR,—I am quite sure that all those of your readers who are in the least degree interested in this matter, will share my own pleasure in reading anything contributed by Mr. Davison.

My sympathies are entirely with Mr. Birch and Mr. Davison in their endeavours to extend as widely as possible the recognised scope of photography. I am fully aware how much the present status of photography is owing to those who have persistently kicked off the harness, which the "unmitigated photographer" of topographical and $f/100$ proclivities has sought to control us with. But the nature of photography requires, I think, that a line shall be drawn somewhere between what is within its proper scope and what is not.

Mr. Davison has made no reference to the main point in my former letter. I contend that there is a radical difference in the method of production of photographic and other pictures, which places a definite limit on the reasonable application of the former.

This difference is that a painting need not be, in fact cannot be, precisely synchronous in execution with the event depicted: a photographic exposure must be.

We will suppose it is desired to illustrate, say, the celebrated incident of Sir Walter Raleigh's gallantry in the presence of Queen Elizabeth. Nobody would be so foolish as to represent Sir Walter with a modern tall hat and "compactum" umbrella Yet he could no more have been photographed at that time than have been provided with those articles. In either case it is to me an equally palpable anachronism of some centuries.

There is only one alternative, and that is that the mind of the spectator must refer not to the historic personages represented, but to the models employed. I regret I write under the disadvantage of not having seen the successes Mr. Davison alludes to, but I feel tolerably sure my attention would revert to the models instantly. The different functions and relative importance of these in painting and photography I need not enlarge upon.

The question is, to a great extent (perhaps entirely), a mental and subjective one; it resting with the peculiar temperament of the individual how far he can tolerate this application of photography.

Admitting all that Mr. Davison claims for the individuality and "imagination" of the photographer—and I am aware how much that means—the camera and lens remain instruments which can only record what is in front of them at the moment the exposure is made. This fact must be ever present, consciously or otherwise, in the minds of spectators, and must not, I think, be ignored.

If I may venture on a very broad and general definition of what seems to me the proper sphere of photography, I would say that wherever the object is a picture, and nothing more, photography is as appropriate a means as any, provided the effect is one within the power of its mechanism, and that the scene be not one in which the presence of the photographer would be a gross intrusion or impropriety: I may instance a grave-side or death-bed scene.

With these qualifications, wherever we are content to accept the picture without enquiring where and when the event was enacted, or the names of the figures, as in *genre* studies in general, well and good. But it does seem to me like playing with photography, to use it in connection with events in which names and dates are mentioned and it is quite certain no photographer could have been present.

A friend, whose opinion I value, suggests that the case is met by printing in a process not too generally identified with photography. I agree that with the disappearance of the photographer the obtrusiveness of the anachronism recedes also; but is only, I think, entirely lost when the process is actually non-photographic.

As the point is one not admitting of arbitrary settlement, I presume we must be content, having submitted our reasons, to "agree to differ."—I am, yours faithfully, J. W. HUGGINS.

* * * *

A DARK-ROOM QUERY.

SIR,—Could any of your readers tell me how to keep my dark-room dry? It is built out of doors in the corner of a yard, and is made of galvanised iron. The ventilation is effected by means of holes bored in the door top and bottom on the one side, and on the side at right angles to it by means of a grating opening into a shed, which shed has a corresponding grating on the opposite wall, which is open to the air. There is a good draught through, and the floor (of concrete) is always perfectly dry. The roof inside, however, is always dripping wet throughout the winter, although perfectly dry in summer. The wet cannot possibly come from the outside, and my idea is that it is condensed from the warm dark-room air by the cold roof, cooled by the lower temperature outside. Yet the dark-room is never very warm, and on my lighting the gas, which, of course, heats the air still more, the moisture on the ceiling dries up in about an hour, only to return on extinguishing the light. If any one could help me I should be much obliged.—Yours, etc., C. E. FEW.

* * * *

EUREKA.

SIR,—Noticing a letter under this heading in your last number, I think it is only fair to point out that a paste specially prepared for gelatino-chloride paper is not new, as I have used Messrs. Wormald's very excellent "photographic paste" for about three years past and a more satisfactory mountant for the purpose (or all purposes) it would be difficult to find.

It is sold by Watson and Sons and Fallowfields. I cannot say if it is obtainable elsewhere.—Yours, etc., W. CRICHTON.

* * * *

A NOTICE.

SIR,—I have noticed lately that there have been many enquiries for a society in the vicinity of Clapham Junction. I should esteem it a favour if you would kindly intimate in your journal that the West Surrey Photographic Society meets at the Public Library Lavender Hill, Clapham Junction.—Yours, etc.,

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* * *

Croydon.—On 3rd inst., before the members of the photographic section, Mr. E. L. Morgan demonstrated the development of plates, bromide paper, and lantern slides with amidol. With plates the original formula was used, but with bromide paper and lantern slides a more concentrated developer was employed, when a good black was desired, the ordinary strength giving a soft greyish colour.

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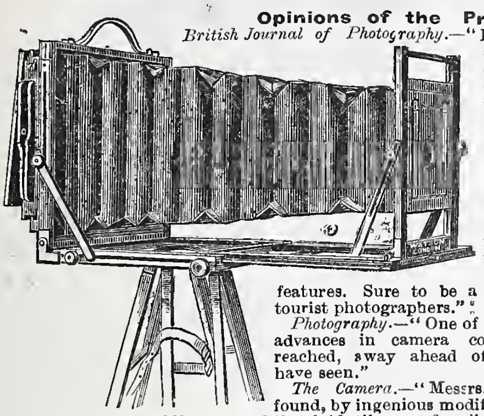

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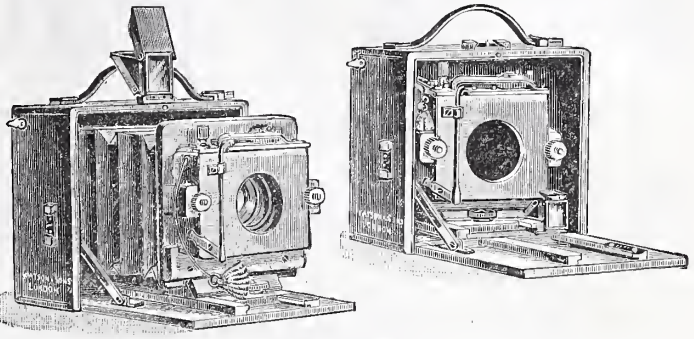

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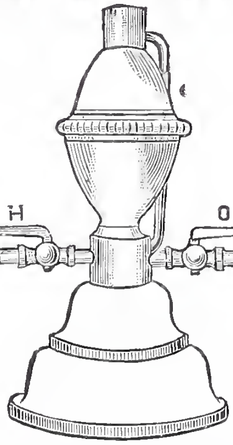

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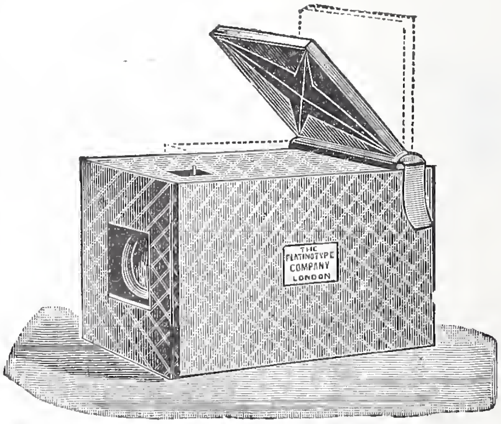

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Photography in its Relation to the Art of Printing.*

By J. H. Alabaster.

In dealing with our subject I do not think it will be out of place to sketch, if only in outline, the history of the sister arts mentioned in our title.

I call printing and photography sisters, because in their highest adaptation both are applied in expressing all that is most beautiful in nature, in science, or in art. A photograph will present to us a delightful representation, and by the help of printing we can not only look upon a pleasing picture, but the words we read can speak to us almost with the force of a living agent. Printing may be described as the art of taking impressions from characters, or figures, on any kind of fabric.

As we understand the term "printing" in the present day it may roughly be divided into letterpress printing, lithography, copper or steel plate printing, and photographic printing, such as Woodburytype, collotype, etc.

The first of these is from movable letters, metal casts, or blocks either of wood or metal; the second from drawings on stone; the third, as the description explains, from subjects engraved on steel or copper; and the fourth from sensitive gelatinous surfaces acted upon by light, and forming reliefs for printing typographically in specially constructed presses.

This is, perhaps, a somewhat technical definition of printing, and a much wider meaning may be given to the term which brings the history of the art back to the very earliest times.

It has been said by one writer that printing is the production of a copy by pressure. That is perfectly true with regard to the processes I have already named, but to quote from a history of printing published some years ago "it may also be applied to a seal impressed upon wax to close a letter or to attest a document; to to coining, *i.e.*, to print upon gold or silver, or copper, or whatever substance used.

"If we give this comprehensive meaning to the word 'printing' we must recognise the ancient Egyptians as the earliest printers, for they printed inscriptions on bricks, and some of the stamps which they used for the purpose now form part of the antiquarian treasures of the British Museum.

"The Babylonians also practised the art in this rude form more than 2,000 years ago, and bricks have been found bearing the name of Nebuchadnezzar. This may be called clay printing, and probably was the first step in the art."

"The next was the use of the seal for making impressions. The Romans used seals at a very early period of their history, and the principle of letterpress printing, though crude, was known to them. They seem certainly to have practised the branding of cattle with red-hot irons, which, after all, is printing in hair, wool and hide. That they narrowly missed the invention of printing by wooden blocks, which must have led to movable types, is evident from the inscriptions on some of the Roman pottery unearthed from time to to time. Many of these inscriptions are in raised letters stamped upon the clay when soft by means of dies cut in intaglio.

"An accident might have suggested the whole art of printing to an inventive Roman, if one of these inscribed pots had become smoked by a lamp, and in that state had come in contact with a piece of linen or damp vellum; the fortuitous impression thus produced might have given birth to the art.

"The invention of money was another step in the art of printing. As I have already stated, to stamp on a piece of money was nothing else than printing on metal. The method used has not been materially altered in the present day. An engraving of the device to be stamped, or die, as it is called, is cut in a punch, and the punch is forcibly driven against the metal, which is thereby stamped with the device.

"As seals were formed with a graver, and money with a die, it is obvious that engraving preceded the primitive method of printing.

"The first appearance of printing in a practical shape was when the seal, or other stamp, instead of being forced against a softer substance than itself, was wetted with some liquid of the nature of ink, and pressed upon another body so that an image or picture of the stamp was transferred to that other body."

It is remarkable that as the Chinese are generally credited with the first knowledge of the compass, and with the discovery of less useful but delectable things withal, as fireworks and roast pork, so printing was first accomplished in China, by a minister of the state named Foong-taon, in the tenth century. "His plan was to place a page of writing, while it was wet, upon the face of a smooth piece of wood. The writing made a mark on the wood, just as a letter does when it is turned down upon a piece of blotting paper; in a word, the writing was impressed or transferred to the wood. Then all that part of the surface of the wood which was not touched by the writing was cut away, leaving the letters standing out. These were wetted with some kind of ink, paper was then pressed upon them, and an inked copy of the letters was thereby transferred to the paper. This was really and truly the art of printing."

The Chinese are remarkable for their stationary character, and I believe it is a fact that they print in much the same way to-day as they did 1,000 years ago. That movable types are not used may be owing to the nature of the Chinese language, consisting as it does, so, at least, I understand, of separate characters for every separate word, being, in fact, signs of words formed without the use of letters.

Printing with wood engravings was effected in 1285, and playing cards, invented to amuse the mad king, Charles VI, were also printed from blocks about 1350; so that we may presume that the art was transplanted from China to Europe, most probably through Marco Polo's description of it on his return from his travels. The introduction of movable types forms a great stride in the progress of the art of printing. This improvement naturally grew out of block printing; yet it was effected somewhat circuitously, and may have been as much the result of accident as of design. John Gutenberg was the first person who ever printed with movable types, though his right to the honour of the invention is disputed by the city of Haarlem, which claims the discovery of the art for one of its own citizens, Lawrence Koster.

The pretensions of the Dutch, however, in his favour have been extinguished, and Gutenberg is recognised as the inventor of printing in the method mentioned.

In 1449, Gutenberg connected himself with a fellow-townsman named Faust, in the prosecution of his invention, a connection which terminated six years later by a lawsuit commenced by Faust for the recovery of money advanced.

Previous to his quarrel with Faust, Gutenberg had made types of cut metal. The first book ever printed from these was the "Mazarine Bible," so-called because, after the existence of the edition had been forgotten, a copy of it was discovered in Cardinal Mazarin's library in Paris. The leaves are printed on one side only, and seven years were spent in producing it. The first letter in each chapter is painted in by hand.

Peter Schœffer holds the honourable position of being the inventor of cast metal types, without which the art of printing could scarcely have become generally practised.

The casting of types at once reduced the cost of their production to less than a hundredth part of what it must have cost to cut them, and thus ensured the eventual spread of the printer's art as an ordinary profession.

It is curious to note that it was the practice of the early printers to pretend that their books were manuscript, their object being not simply to conceal the art, but also to obtain the high prices which were given for manuscript books.

Books were curiosities because they were few and costly in production. They were deemed as valuable as houses and lands, and were conveyed from seller to buyer in the same manner as estates. The inducement held out by the value set on manuscripts was so great that the early printers never sold their books as printed books if they could avoid it.

With one or two exceptions, all the books printed by Gutenberg, Faust, and Schœffer are in the British Museum.

The introduction of the art of printing into England has generally been assigned to William Caxton. He commenced printing in the year 1474, and found a patron in Mulling, Abbot of Westminster, afterwards Bishop of Hereford, who gave him an old chapel in the Abbey for a printing office. The spot now forms part of the site of Henry VII.'s Chapel. The first book printed by Caxton was a "Book of Chess," a title which sufficiently describes the nature of the work.

In 1483 there were only four presses in England—Caxton's, at Westminster; Rood and Hunt's, at Oxford; De Machlinia's, in London; and a fourth (name of the printer unknown), at the Benedictine Monastery at St. Albans. Caxton, however, seems to have been the greatest printer of his time.

Caxton died about the year 1491, and was succeeded in his business by Wynkyn de Worde and Richard Pynsent. The first, a most accomplished man, accompanied Caxton from the Continent. He introduced the Roman letter into England, and the shapes of his types were used for two centuries afterwards. The punches and matrices he used in casting his types were in existence as late as 1758. The art of printing spread throughout Britain as the years rolled on. It seems pretty certain that it was not before 1480, at the earliest, that Oxford had its own printers; while the first printer in Cambridge was John Sibert, whose productions in Latin, Greek, and English bear no earlier date than 1521

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* A paper read before the Richmond Camera Club.

It is not necessary to follow the art as it spread gradually throughout the kingdom during the next and following centuries.

If time permitted us to follow closely the various discoveries connected with the art of photography, I suppose we might go back to the period when the knowledge of the action of light was known to the Egyptians.

The discovery of the "camera obscura" (darkened chamber) may, however, serve very well for a starting point.

Giambattista della Porta, a Neapolitan, had noticed that external objects were reflected on the wall of a darkened room when the light was admitted through a small aperture. Following up the inquiry thus opened to him, he contrived the fitting of a lens in a movable box, and in this way produced the instrument which has suggested greater things, and which to the draughtsman and photographer is invaluable.

The action of light on chloride of silver was known as early as the 16th century, and the phenomenon was studied by early experimentalists, whose names will occur to you—Scheele (1777), Senebier (1790), Ritter, and Wollaston (1801).

From the results of these investigations experiments were made by Thomas Wedgwood and Humphrey Davy in the Royal Institution, London, which were published in its Journal, 1802. Wedgwood, who was the fourth some of the great potter, may be regarded as the first photographer. He discovered a method of copying paintings on glass by placing beneath a white paper covered with a solution of silver nitrate, and exposing to the action of solar light. He could not, however, fix the images. But in 1814, M. Niepce discovered a method of producing, by means of the camera obscura, pictures on metal plates (coated with bitumen), at the same time rendering them permanent.

Another name will suggest itself to many—M. Daguerre. He commenced experiments in 1824, and two years later joined Niepce, and worked with him till the death of the latter in 1833.

In 1839, Henry Fox Talbot first published his mode of multiplying photographic impressions by producing a negative photograph (*i.e.*, with the light and shades reversed), and from which any number of positive copies may be obtained.

I think the earliest application of the art of photography to that of printing is the discovery of photo-zincography in the year 1860.

This is a process by which photographs are transferred to zinc plates, which may be printed from.

It was invented by Mr. Toovey, and perfected by Sir Henry James, Chief of the Ordnance Survey; and made known at the date already mentioned. Charts, maps, and engravings can be printed in this way at small cost. The adoption of the process by the Ordnance Survey Office has resulted in the saving of expense to the Government.

It was not till 1861 that photography was successfully applied to the transfer of works of art to wood blocks. This was accomplished by Mr. John Leighton in his illustrated edition of the "Lyra Germanica" I have here wood blocks of two subjects showing the image photographed on the wood. The process is of much importance, as the original drawing is preserved, not only for comparison with the finished engraving, but it may be for its artistic value. The drawing also may be of any convenient size, and reduced on wood: a great consideration when minute objects are to be represented.

After the photographing on to the wood is done, the picture is "lined up," if necessary, and more clearly defined by the aid of the pencil and Chinese white. This is not always done to aid the engraver, as a skilled engraver prefers to interpret the drawing in his own way without aid, even though the photograph on wood be indistinct; but it is very often important that the subject should be clearly defined, so that the person to whom it is submitted for approval may judge of the correctness and suitability of the block for his purpose. (*Specimens shown.*)

Photography itself, as a science, has advanced very rapidly, even within the last few years. Discoveries are constantly being made of more or less merit, and makers of apparatus are ever ready with something new. But apart from this, during the last decade photography has entered very largely into the ordinary commercial undertakings where printing is employed.

The art of making blocks with the aid of photography, for the purposes of illustrating forms at the present day, is a flourishing industry. Whilst admitting the beauty of a really good wood engraving, it must be granted that for truthfulness and delicacy nothing can excel a good zinco block for use with letterpress; and it has this further merit, that the cost is considerably below that of wood engraving.

Of course, artistic taste and great skill and care in manipulation are required to produce a beautiful illustration, though it is often the case that the choice of picture is with some one who is unacquainted with the requirements of the half-tone process, as it is termed. The beauty of execution in the block is due to the zincographer; but photographers also have a great deal to learn as to the requirements of the half-tone process, in order to ensure a really good block. This will account for the great differences in the appearances of some blocks in illustrated magazines and papers.

It is impossible to produce a good block from a negative or a print which does not lend itself to the process; and it is equally impossible for the printer "to make anything," as the phrase goes, from some blocks that are produced, owing to want of depth and other circumstances. Sometimes, however, by force of circumstances, it is really impossible to obtain a good negative or photograph to illustrate a given subject—a fact which will serve to explain in a degree the great variety in the quality of the blocks produced and printed.

There are, as you know, various methods of illustrating the text of any given work, more or less elaborate and more or less expensive in execution. For example, there are lithographs, where many colours are used; or many coloured prints from a series of wood blocks or zincos carefully registered, *i.e.*, so made that each colour will fall exactly where required. Photography is largely employed for the production of these pictures; or in lithography to ensure accuracy of outline; or for the sake of exactly reproducing stains of age, or usage, or imperfections in old documents, or parchments, or other subjects of antiquity.

Then, again, there are the various and beautiful photographic processes and prints, printed direct on the paper which is to form the leaf of the book; or a photograph may itself be mounted on to the leaf of the book, to form an "inset" or frontispiece.

Of the methods I have already mentioned, I suppose that Collotype, Autotype, or Woodburytype would be the best forms of illustration for certain subjects for commercial purposes, as they most closely represent actual photographs. Collotype is described to me as bichromatised gelatine spread upon glass and printed beneath a negative, then washed out and used as a printing block in specially constructed presses or machines. The gelatine, I believe, is affected a great deal by the weather, and I am told that there is difficulty in obtaining two impressions alike; but I have no doubt, in the hands of the experienced Collotype printers of the present day, these difficulties will soon be overcome, and it certainly is to their great credit that such good work is turned out in spite of the drawbacks mentioned. Collotype, too, has one distinctive and attractive merit besides beauty, and that is economy in cost of production. But I must not, even if I could do so, dilate further upon this subject, as by the kindness of one of our members, I believe, we are to be favoured shortly by a demonstration at his works.

It was rather my wish to bring before you this evening examples of the employment of photography, in helping the printer to produce an illustration at once effective and economical.

For our purposes, then, we can divide the term printing into two main divisions, viz., lithographic and letterpress printing.

In the first of these, then, photography can be employed to produce a subject or design upon a lithographic stone, ready for printing purposes, in much less time and with greater faithfulness than can be secured at the hands of an average lithographic draughtsman.

Take, for example, a white lace curtain or piece of lace. It is required to show effectively the design of the curtain. This must at least incorporate a corner—most generally half a curtain is preferred. Now, it is quite obvious that to secure the print which you see (*specimens shown*), it would take a draughtsman a long while to complete his work, and it would of necessity be very costly: so the end is achieved by means of what is called the photo-transfer process. An ordinary wet plate negative is taken, and a print obtained on paper coated with bichromatised gelatine. This receives a coating of lithographic transfer ink specially prepared for the purpose. It is next floated in warm water till the lines are seen as depressions. With the aid of a sponge and water, the soluble portion (or white) is removed, leaving the picture in insoluble gelatine with its coating of transfer ink. It now only requires to be dried and transferred to the stone for printing in the usual way.

In printing the illustrations for a catalogue or book, the letterpress, or type portion, can, if necessary, be transferred to stone in much the same way by "transfers" being pulled on transfer paper, and the whole "laid down" and printed at one and the same time.

Photo relief etching is a term applied to a picture in relief on metal, which can be used like a woodcut in the ordinary printing press.

Photography is very generally employed in the production of line drawings. To produce blocks of these for the purpose of letterpress printing, the image must be produced on zinc from a reversed wet-plate negative, giving, of course, a positive upon the zinc, but the reverse way to the drawing. The mechanical tint, or stipple, is added afterwards if required. The plate is now rolled up and slightly warmed before placing in the acid bath or etching solution. It is then well rinsed under the tap, and dried with gentle heat upon a hot plate, and gummed in. After it has been allowed to cool, the gum is removed with a sponge. The plate is again "rolled up," and the surface coated with powdered resin and again subjected to the etching solution. The operation of "rolling up," warming down, dusting with resin to protect the sides of the lines, is repeated until the plate attains sufficient depth. The whole of the resin is then washed off, and the removal of the "steps," or shoulder, is effected by a series of acid baths in much the same way as the depth is attained, with the exception that the resin is omitted.

Collodion for wet-plate photography, which I understand still maintains its stand for copying, was, as most of you are doubtless aware, introduced by Archer, in 1850.

It is desirable, in order to procure the best results, that the subject be drawn larger than is actually required, and bolder in proportion (*specimens shown*).

I have also the pleasure to submit a specimen of another system, interesting on account of its producing somewhat similar results without the aid of photography. Here is a copper-plate from which a "transfer" has been taken and transferred to zinc direct. The zinc plate is ready for etching in a similar way to the method just described. I also can show the finished block and impression from it.

I have mentioned the reproduction of lace for lithographic printing, but lace may also be illustrated by the aid of zinc blocks such as I have described. In the case of white lace the piece to be photographed is fastened to black material which does not "give off" any light, consequently the result is a beautiful reproduction with sufficient detail to show the pattern. Black lace is made to adhere to ground-glass and photographed against the light—that is, the ground-glass is suspended in the line of light between, say, the window and the camera—the lace towards the lens (*specimens shown*).

So much for line drawings, but by far the more artistic blocks are designated by the term "half-toned blocks." These are specially suitable for portraits, landscapes, and architecture. The processes by which they are produced may be very simple when you know them, but they are not publicly known, and I am sorry I cannot do more than show you a specimen, the start and the finish, as I may call them.

1. Photograph. 2. Finished block from same.

I read, however, that some modifications of the methods patented by Mr. Fox Talbot, in 1852 and 1858 are understood to be in use. He called his process Photoglyphic engraving. Talbot got the image with bichromatised gelatine. The necessary reticular grain was given to the plate in two ways. By one of these he covered it, after development, with a fine deposit of resin. It is then ready for the etching solution By the other method he took fine muslin or netting and applied it by mechanical pressure to the plate which covered it with fine cross lines. Goupil, of Paris, has a process which is believed to be worked upon the plan of forming a gelatine image, and then electrotyping it. But, as I have said already, the patentees of the various processes do not allow information to leak out if they can help it, and most producers have chemical secrets known only to themselves, though general principles may apply to all the methods.

Most of you are familiar with the lettering, as it is called, on the covers of bound books. The designs for these are usually cut in brass, from drawings on paper; but since the application of photography, zinc blocks are now being made which bid fair to supersede the older and more expensive brass blocks. The metal for these is rendered extra hard to resist the heat necessary in the process of gold blocking.

All process blocks can be duplicated to any extent by electrotyping or stereotyping at a low cost, so that one may readily perceive the advantage to be derived by advertisers wishing the same illustration to appear simultaneously in say fifty periodicals or newspapers. The cost of fifty original blocks would, of course, be practically prohibitive.

The public then reap a benefit by the production of the kind of blocks that I have attempted to describe, because attractive books, newspapers, and periodicals are produced at a figure which would be well nigh-impossible if the old system of wood engraving were resorted to.

Zincography in its development has naturally told unfavourably upon many wood engravers, but these again in many instances have linked this department with their original profession; and really, for first-class work, steel engravings and wood blocks of high quality hold their own, though for commercial purposes people will not pay the high prices demanded for them. But then, again, it is quite impossible to employ photography on some subjects, and a choice has to be made of some other method of illustration.

One reason of the popularity of "Zincos" is that they can be worked with the type (*method illustrated*), ensuring, of course, a saving in the printing, the whole being done in one operation, instead of two or more, provided, of course, the type and block are to be printed in the same colour.

In the illustration of books and newspapers, it is, of course, most desirable that the reproduction of the photographs should be made as perfect as possible, and in this connection, before concluding, I must acknowledge my obligation to Messrs. Swain and Son, of Farringdon Street, not only for valuable aid in the technical parts of my paper, but for the skill and care exercised in producing, at my request, the excellent specimens I have been privileged to submit.

I cannot pretend to have exhausted the subject before us, but I trust I have said enough to show you the utility, if I may be allowed the term, of the photographic art to commercial purposes. The application of the art in the way I have attempted to demonstrate has done very much to raise the tone of publications generally, and to educate the taste of the people who read them. It has also contributed largely to replace the crude and occasionally vulgar illustrations of bygone days, and it enables authors and publishers to put into the hands of readers, of even the cheapest literature, artistic and truthful representations of persons, current events, and matters of interest generally.

Experiences.

By Charles Henry Brown

(Hotel des Iles Britanniques, Bordighera).

In my youth, photographically speaking, I was glad to read of the troubles and successes of the searcher after good negatives, and I think I derived more practical and useful information from such reading than from text-books. When I took up photography in the summer of 1890, I was at once fascinated, and went at it with desperate ardour, resolving in the end to render myself capable of producing work worth looking at. How the craze got hold of me may be measured by the fact that I began with a 4 by 5 camera, and now am the possessor of three other larger ones (of this anon). At this time I was so domiciled that I could fit myself up a dark-room, with convenient water supply; in fact, it was my bath-room. I now, like others, accumulated a heap of chemicals, bottles, trays, washer, and everything advertised to be a help. I tried various developers, plates, and films, until I have, through failures, perseverance, and experiment, arrived at some measure of success with entire simplicity of procedure. A lot of impedimenta is very well if one has a permanent locale; in my case it is not so, therefore I have had to reduce myself to the fewest possible appliances.

Last summer I purchased a half-plate "Ruby" camera, by Thornton and Pickard, with, of course, one of their shutters. As a good portable working camera and shutter, it is as near perfection as may be. I fitted it with Ross and Co.'s new Concentric lens. Comparing this lens with others for which I had paid a good price, it is not near, but is, absolute perfection; it give perfectly good definition and good focus all over the plate. To any intending camerist I say, do not go in for a small or cheap camera; buy the very best thing you can get, and not less than half-plate; practically it is as easy to carry about the country as a smaller one. If my last had been my first purchase I should not now possess four cameras, the expense of three would have been saved, and I should have been so much in pocket. The art is so fascinating that, as sure as fate, if you start with an inferior camera, you will feel yourself compelled to get a better one, making the first expenditure a dead loss.

After passing through the usual larval experiences of an amateur, I think I have arrived at the imago condition of a settled and satisfactory mode of procedure, suitable to any one who has not a fixed and permanent studio, where it matters little how much impedimenta one accumulates. This looks, perhaps, a little conceited, but I really yet only consider myself a student. Whether I have produced fairly successful work or not, I leave you, Mr. Editor, to judge, so I forward two or three specimens of bromide prints with this. For convenience of travel I have reduced impedimenta or working apparatus to a minimum, consistent with producing negatives and prints. Above I have spoken of camera and lens; I wish I could speak as favourably of the tripod supplied to me. A desideratum in a tripod is one that will remain fixed and rigid in its limbs, when set up, and not flop down an inch or two in one leg just as you are putting in the slide; such an event is not conducive to pleasant thoughts or good language.

Instead of using glass dry plates, I have for the past two years entirely confined myself to Fitch's Xylonite films; the weight and bulk is infinitely less than glass, and during that time I have never had a single film with a fault in it. They require no cleaning at the back, and produce negatives which print with a softness and gradation of tone which cannot be excelled.

As regards development, we often hear it said that nothing beats old pyro. Quite true, but it can be equalled with more simplicity and convenience. I have had plenty of experience with pyro, and have entirely given up its use, and confine myself to Dr. Andresen's eikonogen cartridge; it is portable, clean, and no trouble to mix. In very cold weather the water should be slightly warm, to enable the powder to dissolve completely without sediment; in summer the natural warmth of the water is sufficient. One cartridge is dissolved in 100 grammes of water, and there you are with a splendid strong developer, which can be used five or six times. In practice, it is best to begin with the developer when it has been used several times; and when the development has pretty well advanced, pour it off, wait a minute or two, then pour on a fresher developer, which will force out remainder of shadow detail and complete the negative. I keep three bottles going—begin with No. 1, finish with No. 2; when No. 1 gets rather weak, pour it away, and fill up the bottle with No. 2, which thus becomes No. 1; fill up No. 2 from No. 3, which is fresh and unused.

For fixing, I carry fixing cartridges, which are made by the same firm at Berlin which makes the Andresen eikonogen. One cartridge is dissolved in 200 grammes of water; it is most efficient in action, does not become discoloured, and may be used over and over again.

Besides a printing frame and glass measure, three trays are all the working apparatus required; one for developing, one for rinsing, and one for fixing. It greatly facilitates work to have a Lewis's automatic plate rocker for fixing; it leaves the hands free to go on with the next. After fixing comes the usual prolonged washing. This when one is living in hotels is a serious difficulty; to meet it I allow the negatives after rinsing once or twice to soak all night in water, in which there is a little hypochlorite of zinc, Belitzki's formula. This is said to eliminate the hypo, and, as far as I can see, having used it here this and all last winter, appears to do so.

When one's negative is dry, we naturally want a print from it. For this I have always used Eastman's bromide paper, on which can be got the most tender or strongest tones of colour. The best for all-round work is the "Permanent" B quality. I have not found the "Extra Rapid" to give better prints, from any strength of negative the C quality, a rougher paper, is very fine for certain classes of landscape subject.

Ferrous oxalate is, of course, so to say, the normal bromide developer, but not being convenient *en voyage*, I use the Andresen eikonogen cartridge. Take 30 grammes of the 100 grammes solution, and fill up with water to 100 grammes, or even to 120; that is to say, take three times the quantity of water as for negatives; if it is made stronger the tone will be brownish. This produces prints as fine in tone and colour as ferrous oxalate. For fixing the prints use 300 instead of 200 grammes of water to the fixing cartridge, rinse, and let soak in water containing a little of the hypochlorite of zinc for two or three hours; an ounce to a quart of water is about the right quantity.

It is a popular idea that there must be a lot of mess in the practice of photography. By the reduction of formulæ and apparatus which I describe, one can produce the finest results, and work a whole evening scarcely wetting the fingers. A Holiday 21s. lamp, and a piece of thick black cotton cloth rigged up to the window, give you a dark room in which to work with a minimum of trouble.

So much for negatives and prints. Before them comes the most important part of photography—the exposure. I now rarely lose a film. Why? Because I have for the past two years used Watkin's exposure meter. I have used it in all conditions of light and in various latitudes, and have found that if I expose strictly to its indications, the negative is a success. I consider from experience that its judgment is infallible, and I am quite sure the same cannot be said of any human being, however experienced he may be.

For printing in daylight I use Eastman's Solio paper. The printing solutions can be made up by any druggist, wherever one happens to be. It is one of the most beautiful and satisfactory printing-out papers that has yet been brought out, very admirable for portraits.

Without all the conveniences of a fully equipped dark-room, and with a minimum of stock and apparatus, I state what I have found to be perfectly satisfactory and successful in my own experience, without any reference to other people's methods, formulæ, plates, films, actinometers, and what not, for all of which I have the greatest respect wherever they have been found satisfactory to any brother worker in the charming field of photography.

For the amateur who is not at home, the convenience and excellence of the cartridges is unquestionable. For home work, eikonogen has the superiority of its cleanliness and simplicity over pyro for negatives, and for prints works equal to iron, not to that extent as to oust iron from the studio, as were I at home I should often use the ferrous oxalate.

* * *

The Meisenbach Company, of Wolfington Road, West Norwood, have sent us a political calendar for 1893, which has a border with portraits of over 600 members of the present Parliament. Although the heads are very small (3/16 of an inch), they are wonderfully distinct and clear. It is a good specimen of the value of process work and its superiority over hand engraving.

Elliott and Son's Exposure Table.

Messrs. Elliott and Son, the well-known dry-plate makers of Barnet, are issuing a specially compiled aid to exposure of their plates, which certainly possesses some novelties. Four wood blocks have been specially engraved to represent subjects such as are met with in ordinary work, and are lettered A, B, C, D, and these are used with the following tables:—

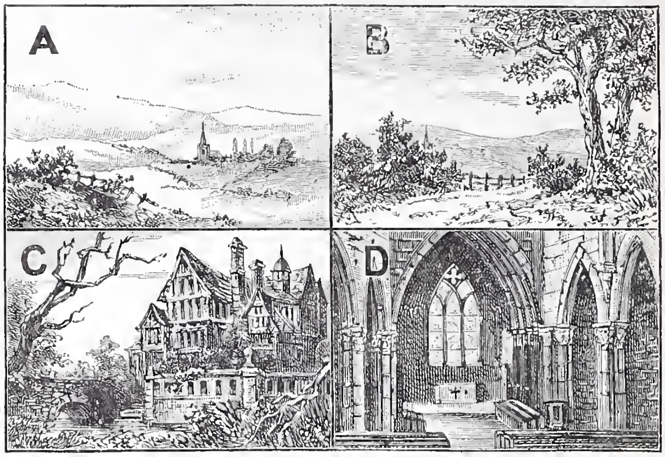


TABLE No. 1.

Showing approximate exposure for any given time of day and year for 'BARNET' ORDINARY PLATES, with STOP F. 32, in BRIGHT SUNLIGHT.

To find exposure for any other size of stop, see TABLE 2 on other side.

A—Distant view *without* dark objects in foreground—see Illustration on other side.
B— Ditto WITH HEAVY FOLIAGE or dark objects in foreground—ditto.
C—Near Architectural subjects, or portraits out of doors ditto.
D—Well-lighted Interiors or portraits in ordinary rooms ditto.

Morn. After.	6 o'clock 6 ,,				7 o'clock 5 ,,				8 o'clock 4 ,,				9 o'clock 3 ,,				10 o'clock 2 ,,				11 o'clock to 1 ,,				
	A Sec.	B Sec.	C Sec.	D Min.	A Sec.	B Sec.	C Sec.	D Min.	A Sec.	B Sec.	C Sec.	D Min.	A Sec.	B Sec.	C Sec.	D Min.	A Sec.	B Sec.	C Sec.	D Min.	A Sec.	B Sec.	C Sec.	D Min.	
Jan	...	...	...	...	...	...	...	...	...	...	...	...	3	6	12	...	1½	3	6	25	1	2	4	10	Jan
Feb	...	...	...	...	...	...	...	...	3	6	12	...	1¾	3½	7	25	1¼	2½	5	15	¾	1½	3	6	Feb
Mar	...	...	...	...	2½	5	10	...	1¼	2½	5	25	¾	1½	3	10	⅝	1¼	2½	5	½	1	2	2½	Mar
Apr	2½	5	10	...	1¼	2½	5	25	¾	1½	3	10	½	1	2	5	⅜	¾	1½	2½	⅜	¾	1½	1½	Apr
May	1½	3	6	25	1	1½	3	9	½	1	2	4	⅜	¾	1½	2½	¼	½	1	1¼	¼	½	1	1	May
June	1	2	4	15	⅝	1¼	2½	6	½	1	2	2	⅜	¾	1½	1½	¼	½	1	1	¼	½	1	1	June
July	1¼	2½	5	25	¾	1½	3	9	½	1	2	5	⅜	¾	1½	2	¼	½	1	1¼	¼	½	1	1	July
Aug	2½	5	10	...	1¼	2½	5	25	⅞	1¾	3½	12	⅝	1¼	2½	5	⅜	¾	1½	2½	⅜	¾	1½	2	Aug
Sept	...	...	...	...	2½	5	10	...	1¼	2½	5	30	1⅛	2¼	4½	15	¾	1½	3	8	⅝	1¼	2½	4	Sept
Oct	...	...	...	...	...	...	...	...	2½	5	10	...	2	4	8	30	1	2	4	20	1	2	4	8	Oct
Nov	...	...	...	...	...	...	...	...	...	...	...	...	3	6	12	...	1¾	3½	7	30	1¼	2½	5	12	Nov
Dec	...	...	...	...	...	...	...	...	...	...	...	...	4	8	16	...	2¼	4½	9		1½	2¾	5½	15	Dec

SUN OBSCURED, give double these exposures; DULL, 3 times; VERY DULL 4 to 6 times.
Figures in columns A, B, & C, denote SECONDS. Figures in column D denotes MINUTES.

DIRECTIONS—Compare subject to be photographed with above illustrations, note time of day and month, refer to TABLE 1 on other side, under group of columns headed with corresponding time of day, follow down the column headed with the letter on illustration similar to view, until the line marked with required month is reached, when the approximate exposure will be found.

TABLE No. 2.

Showing *comparative* exposures for any size Stop.

The exposures in preceding Tables being calculated for medium size Stop F. 32.

F/6	F/8	F/11	F/22	F/32	F/44	F/64
1/128	1/64	1/32	1/16	⅛	¼	½
1/64	1/32	1/16	⅛	¼	½	1
1/32	1/16	⅛	¼	½	1	2
1/20	1/10	⅕	⅜	¾	1½	3
1/16	⅛	¼	½	1	2	4
1/13	⅙	⅓	⅝	1¼	2½	5
1/10	⅕	⅜	¾	1½	3	6
1/9	¼	½	⅞	1¾	3½	7
⅛	¼	½	1	2	4	8
1/7	¼	½	1⅛	2¼	4½	9
⅙	⅓	⅝	1¼	2½	5	10
⅙	⅓	¾	1½	2¾	5½	11
⅕	⅜	¾	1½	3	6	12
¼	½	⅞	1¾	3½	7	14
¼	½	1	2	4	8	16
⅓	½	1⅛	2¼	4½	9	18
⅓	⅝	1¼	2½	5	10	20
⅜	¾	1½	3	6	12	24
½	⅞	1¾	3½	7	14	28
½	1	2	4	8	16	32
½	1⅛	2¼	4½	9	18	36
⅝	1¼	2½	5	10	20	40

The A B C of the Lantern.

Bright Lines of Spectrum, to Show.—See Spectrum.

Brockie's Lamp.—See Electric Light.

Bye-pass.—When a biunial or triunial lantern is used it is necessary also to have a little contrivance called a dissolving tap (*q. v.*), by means of which the supply of gas may be cut off from one lantern and turned on at another. But it is obvious that if all the supply of both gases was cut off it would be necessary to relight the gas in the lantern in which it was turned off when the lantern was required again; therefore, to avoid this a small supply of hydrogen is allowed to pass, which, keeping alight, obviates this trouble. It is also often customary to allow a very small supply of oxygen to pass, and this supply is regulated by one or two small taps which allow just sufficient gases to pass. Further explanation with diagram will be given under Dissolving Tap (*q. v.*)

Calorescence is defined by Tyndall as the production of light from the invisible rays beyond the red end of the spectrum. Tyndall's experiment to show this was to use a globular flask, about 4 in. diameter, containing bisulphide of carbon holding in solution iodine, placed in front of an electric-light lantern provided with a mirror to throw out a parallel beam, and the condensers being removed. This will focus the heat rays whilst absorbing the light rays, and black paper and other substances can be made to take fire at that focus. This experiment is not one, however, which the ordinary operator should attempt, as bisulphide of carbon is very volatile at ordinary temperatures and boils at 118 deg. F. Lewis Wright suggests the use of a solution of iodine in tetrachloride of carbon, which has a higher boiling point, namely, 172 deg. F.

Canting Table.—This is a very convenient appliance which should be in every lanternist's possession and is merely a device for tilting the lantern for projecting the image on inclined screens. Failing a regularly constructed canting table, an ordinary studio camera stand may be pressed into service with equally fine results.

Capillarity, or capillary attraction and repulsion, which is defined as the ascent above or descent below the level of the surrounding fluid, which takes place when a glass tube of fine bore is dipped into water, alcohol, or mercury, is easily shown with an ordinary chemical tank, on the top of which is fixed a wooden lath carrying glass tubes of various bores. On partially filling the tank with coloured water or alcohol, the liquid will be seen to creep up the tubes to different heights,which is proportional to the diameter of the bore. When mercury is used, the level of the liquid in the tubes is below that of surrounding liquid and it is not therefore possible to show this with a tank, but a comparatively wide tube of about ½ in. diameter may be drawn out in a gas flame and bent round into a **U** shape, the one arm being of fine bore. On filling the larger arm with mercury it will creep up the fine tube, but not to the level of that in the larger tube. As these experiments will appear upside down on the screen when projected in the ordinary manner, it is advisable to have an erecting prism (*q. v.*) to invert the images.

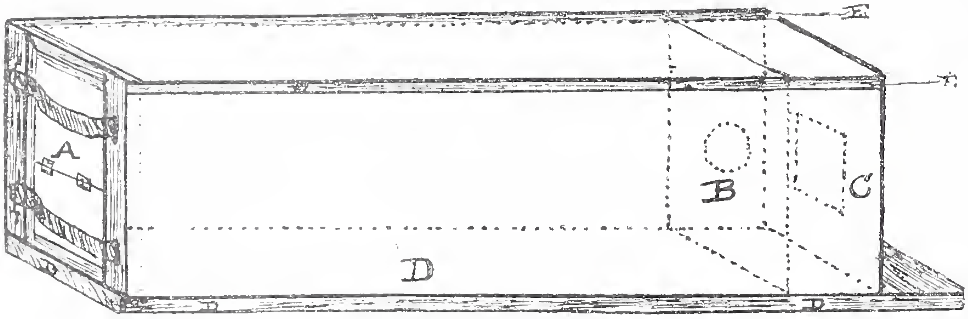
Carbons, Inclined.—See Electric Light.

Carbon Process, Slides by.—This process is eminently suited for the production of lantern slides when the negatives from which they are to be made are of small dimensions, the slowness of the process rendering printing by contact a necessity. The slides themselves, when produced under suitable conditions, are of very fine quality and show well upon the screen. The principal advantage, perhaps, of the process, is the variety of colours obtainable by it, and, further, the fact that a whole series of slides may be produced absolutely uniform in tone and colour. The image in a carbon slide is wholly composed of pigment in a more or less fine state of division. Very good slides may be produced upon the ordinary tissue used for paper prints, but the special transparency tissue in which the pigment is specially prepared and very finely divided will be found to give the finest results. The pigmented tissue is obtainable in the following colours, which will give those who are unacquainted with the process some idea of the variety of colours obtainable:—Black, warm black, blue, green, purple, sepia, red chalk, and brown, though some of these colours are not made in the special transparency tissue. The tissue may be obtained from the Autotype Company, Messrs. Marion, and from Elliott and Son, of Barnet, and other dealers, either insensitive (in which condition it will keep indefinitely) or sensitised ready for use. In order to obtain good results the negatives should be plucky and rather vigorous, particularly if ordinary tissue is to be used. Before proceeding to print, a strip of opaque paper, similar to that used for binding the slides, should be gummed round the margin of the negative, to form what is termed a "safe edge," which, by preventing any light action on the edge of the tissue, will prevent it from leaving the glass during development. The tissue, having been previously cut into pieces, 6½ by 6½ square, is *immersed* for *three minutes* in the following solution:—Bichromate of potash, 1 oz.; water, 20 oz.; any air bubbles being carefully removed with a camel-hair brush. It is sometimes recommended to squeegee the tissue to a collodionised plate, but this further complicates the manipulation for the novice, and if the following directions are carefully followed will be found unnecessary. At the expiration of the three minutes the tissue is taken from the bath, placed, face down, on a piece of *perfectly clean* glass, and a squeegee firmly applied; this removes the surplus solution from both back and front, and prevents future trouble in the shape of irregular drying and consequent unequal sensitiveness. The tissue if prepared at night and suspended by wooden clips to a line in a darkened but warm room should be dry and fit for use by the morning. The action of light producing no visible effect upon the tissue, the progress of printing has to be ascertained by the employment of an actinometer, which consists of a box, the lid of which is painted a shade of chocolate; when a piece of sensitised paper, which is provided, darkens to a corresponding colour, one "tint" is said to have been registered, which affords a guide to the correct duration of exposure. The tissue and the actinometer are exposed simultaneously to light, and the actual number of tints required will depend upon the density of the negatives which one or two trial exposures will determine, the tissue under the negatives not requiring to be examined during the progress of printing. The glass upon which the exposed tissue is to be developed will require some preparation. Each plate, 3¼ by 3¼, after having been thoroughly cleaned, should be coated with the following substratum:—Gelatine, 1 oz.; bichromate of potash, 20 gr. It is essential that the drying should take place in *daylight* and in a place free from dust. To develop, fill a deep porcelain or tin dish with water, which should be maintained at a temperature of from 95 degs. to 100 degs. by placing a spirit lamp beneath. The exposed tissue should have been previously immersed in a dish of clean water until limp; one of the prepared glasses is then taken, placed under water, and removed with a piece of tissue, with its pigmented side in contact with the prepared surface; a squeegee should then be carefully but firmly applied to ensure contact and remove air-bells. About ten minutes should be allowed to elapse before development is proceeded with. At the expiration of that time the mounted tissue is placed in the warm water. In a few minutes the colour will begin to dissolve out at the edges; when this occurs the paper upon which the tissue was coated may be gently peeled off. Development will now proceed and may be facilitated by gently laving the transparency with the hand. When all detail is out the transparency is plunged into a dish of cold water, from which it should be subsequently transferred to one containing a solution of alum 1 oz., water 20, being subsequently washed and dried. As carbon transparencies produced from ordinary negatives will be reversed as regards right and left, it is necessary to put the registration dots on the slide glass and *not* on the cover glass, so that the picture may not appear reversed when projected upon the screen.

(*To be continued.*)

A Cheap Enlarging Camera.

THE following diagram and notes of a demonstration given before the Fairfield Camera Club have been kindly sent us by Mr. T. E. C. Wilson.



To make this camera you will require a 12 by 10 printing frame (A), two half-inch deal boards, same size as the outside of frame (B and C), one half-inch deal board 30 in. long, and same width as frame (D), two quarter-inch laths 30 in. long, a sheet of thick brown paper, and a piece of black calico.

In the centre of board B cut a circular hole the exact size of the screw of the lens, which must be a quarter plate of about 5 in. focus, and in the centre of board C an aperture with rabbet to hold a quarter-plate. Screw the printing frame A firmly to one end of the baseboard D, and at a distance of 27 in. screw the board C temporarily, then fix the laths E to the top of each side, and you will then be ready to adjust the focus; place a negative in the aperture C, and a piece of ground-glass in the printing frame (leaving the back off), and having screwed the lens securely into the board B, fix it temporarily, about 6 in. from the negative; cover the whole with a dark cloth, and proceed to get the most important point of all, viz., the exact focus, by moving the lens board B to and fro, until a sharp picture is obtained on the ground glass. Be most particular that the lens board B and negative board C are perfectly straight, and when quite satisfied with their position, screw them firmly to the baseboard D and the laths E. Cover the camera from the printing frame A to the board B with stiff brown paper, taking great care that it is perfectly light-tight, the section from the lens board B to the negative board C with black calico, leaving one corner loose to enable the hand being inserted to cap and uncap the lens, after which it may be fastened with a button or hook.

The camera is now ready for use. Place a negative in the aperture C, stop the lens down to *f*/32, and cap it; then take the camera into your dark-room, and place a piece of bromide paper in the printing frame with a piece of canary or ruby fabric on the top to prevent the light penetrating from behind; then replace the back, and carry the camera to an open window, elevate the negative end to the sky, and expose by removing the cap in the usual way; after exposure, recap the lens, and take the camera back to the dark-room, and develop.

* * *

From Mr. Anschutz we have received a print taken in one of his special cameras, on a trip up the river, of a group, in which it is extremely easy to recognise Miss Barnes, the Misses Birtles and Warnerke, and Messrs. Snowden Ward, Birtles, Scott, Schwarz, Haussmann, and ourselves.

Photographic Lens Testing at Kew.

BY MAJOR LEONARD DARWIN, R.E., M.P.

(*Concluded from page* 45).

IN order to measure the astigmatism of the lens the reflection of the light of a lamp, as seen in a thermometer bulb, is used as the test object. If there is any astigmatism, the image of this minute point of light, if seen near the margin of the plate, can be made to appear, first as a fine line in one direction, and then, as the focus is lengthened, as a fine line in a direction at right angles to the first direction. The distance between the focal lines, as they are called, gives a measure of the astigmatism at that part of the field; but as this measure would give no idea to the photographer of the harmfulness or this defect, the size of the disc of diffusion caused by this astigmatism is calculated and recorded in the Certificate. It should, however, be remarked that in these calculations an assumption is made that the focal lines are perfectly defined. If they are not sharp no entry is made in the Certificate; and, even if they appear to be sharp, the definition or sharpness may not be perfect, which will make the size of the disc as recorded somewhat larger than it really is. Some allowance must therefore be made for this circumstance when considering the result of this test.

The last test which I shall mention is the 17th, in which the relative illumination of different parts of the field is determined. The system adopted is that due to Captain Abney, and consists in matching one part of a paper screen, which is illuminated by light thrown on to it from a movable lamp, with another part of the same screen, which is illuminated by transmitted light; this transmitted light coming from a fixed source of light and passing through the lens under examination. As the screen is made to represent different positions on the plate, the distance at which the movable lamp has to be placed is found to vary, and we can thus obtain a measure of the relative intensity of illumination of different parts of the field.

It will no doubt be remarked that during no part of the examination is any photographic method used, and it may naturally be asked to what extent, if at all, does this detract from the value of the results obtained? We admit freely that if time and expense had not to be considered, photographic methods might be employed with advantage; but, with one exception, we believe the gain would be very small indeed, and quite out of all proportion to the additional fee which would have to be charged. A very little consideration will show that the majority of tests can be done by direct measurements or observations by the eye. In the case of the test for distortion, for example, it is found to be quite as simple, if not simpler, to measure the curvature in the path representing the image of a distant object moving in a straight line, as it would be to measure the curvature on a photographic plate in which a straight line is depicted. In the same way the measurements with regard to the angular size of the field of view can be done exactly as well by instrumental means without photography as with it. But as to some of the tests the case is somewhat different. Flare spot would in all probability be more easily detected in the negative. As to the test for achromatism, greater theoretical accuracy would no doubt be obtained; but there is every reason to believe that the source of error introduced by the eye observation is too trifling to be worth serious attention. As to definition, it is conceivable that the actinic rays may be brought to a better or a worse focus than the visual rays, and that therefore the eye observations may be misleading; but we have no evidence on this point, and from other theoretical considerations we have reason to think that the eye observations are more likely to produce correct relative results. But as to the illumination of the field, here we must admit that photography would be most useful. The relative intensity of illumination can, we think, be more readily measured than the relative density of the negative, and no fault can be found in that respect. But it is a fact that variations in the intensity of the actinic rays transmitted through glass do not coincide with and cannot be measured by the variations in the intensity of the transmitted visual rays, and for this reason no eye observations can be thoroughly satisfactory. The subject is still under consideration, and it is hoped that some improvement in this direction may eventually be made.

In conclusion, I may say that it would be foolish to suppose that perfection could be obtained when first establishing such a complicated system as that necessary for the thorough examination of a photographic lens, and for that reason I sincerely hope that the Kew programme may be subjected to the most severe but I hope friendly criticism, so that any defects may be remedied if possible.

Some Results and Conclusions
DERIVED FROM A
Photographic Study of the Sun.

By George E. Hale.

(From *Astronomy and Astro-Physics.*)

In view of the fact that the study of prominence, faculæ, and sun-spot spectra by photographic means has now been taken up by several investigators, it seems desirable to bring together the results of the work in this direction which has been in progress at the Kenwood Observatory since April, 1891. Some of these results have been published before or casually referred to in papers on other branches of solar work, but they cannot fail to be of greater value for comparison with the investigations of others if grouped in a single article. There also remain to be mentioned several disconnected matters to which attention has not yet been called.

The following are some of the results, with several conclusions to which I have been led; further investigations may very possibly render necessary material modifications in the views here expressed.

Chromosphere and Prominences.

1. H and K are always present as the strongest lines in the chromosphere and prominence spectrum.

2. These lines extend to the highest parts of all prominences, but have not yet been traced to any greater distance from the limb, *i.e.*, into the corona.

3. K seems to be invariably stronger than H, and extends farther from the limb.

4. In cases of motion in the line of sight, the distorted forms of the H and K lines are similar.

5. Prominences have the same form in both lines. Where apparent differences exist they may probably be ascribed to the greater brightness of K. (This remark also applies to 4.)

6. Both H and K expand rapidly in width from the upper surface of the chromosphere to its base. Consequently photographs taken with the slit just tangent to the limb show these lines more than twice as broad as they appear in the higher region of prominences.

7. Both lines are often doubly reversed (narrow dark lines running down the centre of the bright lines) in the chromosphere, and sometimes in the base of bright prominences.

8. H is always accompanied by a hydrogen line ($H\epsilon$), but this line is much fainter, and does not extend so high in prominences.

9. The entire series of ultra-violet hydrogen lines have been photographed in very bright prominences, but in faint prominences the lines more refrangible than α_1 or β_1 are usually absent from the photographs. They may, however, be present as very faint lines in all prominences, but remain invisible on the photographs on account of the brilliancy of the atmospheric spectrum.

10. The line α_1 is frequently accompanied by a line slightly more refrangible, which is probably not due to hydrogen. In a few cases α_1 has been single in certain parts of a prominence, and double in other parts.

11. The upper component of α_1 is sometimes doubly reversed in the chromosphere.

12. No prominence has yet been found which showed the H and K lines alone, *i.e.*, without some of the less refrangible hydrogen lines.

13. The forms of prominences as observed in C and in H and K seem to be the same, though they may be more extensive in the latter lines.

14. Prominences seem to have the same motion in the line of sight, whether observed in C or in H and K.*

15. The spectra of eruptive prominences frequently contain many metallic lines in the ultra-violet; notably the magnesium triplet at λ 383. †

16. Eruptive prominences sometimes exhibit a continuous spectrum in the ultra-violet.

17. Prominences frequently show evidences of spiral motion.

Faculæ.

18. Both H and K are always reversed in faculæ.

19. These reversals are usually (if not invariably) double, a narrow dark line running down the centre of the broader bright line. The appearance on the photograph is consequently as if there were two narrow bright lines separated by a narrow dark line, in the centres of the broad dark shades at H and K. In some instances I have noticed that one of these narrow bright lines was missing in certain portions of a facula, an unsymmetrical double reversal resulting.

20. Distortions in the doubly reversed H and K lines of the faculæ are rare. I have found but one or two instances of this kind, and in these cases the distortions took the form of expansions in the lines.

21. H is usually unaccompanied by the slightly less refrangible hydrogen line, referred to above as being always present in prominences. In a few cases, however, this line has been found extending across spots, and for some distance in the faculæ on either side.

22. Neither α_1, nor any other bright lines more refrangible than H and K have been found in faculæ or spots.

23. Curved forms predominate in faculæ, and suggest some relation with spiral forms in prominences.

Spots.

24. The bright H and K lines seem to invariably extend entirely across every sun-spot. Both lines are doubly reversed in the faculæ which probably completely surround every spot. In the umbra the reversals are narrower, and the dark central line is usually absent.

25. Small spots, especially when members of a group containing large spots, are frequently completely covered with faculæ.

26. In the ultra-violet spectra of spots the dark lines of the solar spectrum do not seem to undergo selective widening, as in the less refrangible parts of the spectrum. Beyond the presence of the bright H and K lines, and the infrequent appearance of $H\epsilon$, the spot spectrum seems to differ from the ordinary solar spectrum only by the increased general absorption.

27. Distortions of the bright H and K lines in spots are extremely rare.

Conclusions.

28. The exact agreement of H and K with the two strongest lines in the spectrum of the calcium spark leads me to attribute these prominence lines to calcium. While the properties of calcium in its terrestrial condition make it difficult to see how its vapour can form the most important constituent of the prominences, yet I do not see how we are to escape from this conclusion.

29. No other than a negative conclusion can as yet be offered in regard to the perplexing question of the so-called "white prominences." At the eclipse of August 29th, 1866, a large prominence was photographed which was said by Professor W. H. Pickering to have no other lines in its spectrum than H and K, and a faint trace of an ultra-violet line, in addition to a bright continuous spectrum. He goes on to add:* "It was therefore quite invisible, both before and after totality, by the usual spectroscopic method, as was, in fact, noted at the time by Professor Tacchini." The character of the photograph, at least so far as can be judged from the reproduction accompanying the report, was hardly such as to warrant any very positive statement as to the absence of the hydrogen lines, particularly as they might have been partly obscured by the bright continuous spectrum. The prominence might also have been eruptive in nature, not lasting longer than the duration of totality, and thus may not have existed when Professor Tacchini made his observations before and after the eclipse. However, this may be, for this is only one of a number of cases in which "white prominences" have been recorded, I have as yet found no prominences which exhibited H and K without the hydrogen lines. This point has not been made the subject of special investigation, however, and it may be that some cases of the kind may ultimately be brought to light.

30. The fact that small spots are sometimes completely covered with faculous matter (or possibly with prominences) may assist in explaining the anomalous heat radiations recently measured in certain spots by Professor Frost.† I hope to take up this point more in detail elsewhere.

31. Photographic methods have abundantly substantiated the conclusions long ago drawn from visual observations in regard to the nature of faculæ. In a great many photographs taken with the spectro-heliograph, faculæ are shown projecting above the sun's limb. And the intimate relationship between faculæ and eruptive prominences is not less evident, especially in composite photographs showing faculæ and prominences on the same plate. When we consider that eruptive prominences probably rise from faculæ, it is not at all surprising that such prominences sometimes show a continuous spectrum in addition to their bright lines. For a violent eruption would naturally carry up with the prominence some "dust-like"‡ matter from the facula, which would give a continuous spectrum.

32. The reversals of the H and K lines over spots seem to be readily explainable. As has been stated above, the reversals are double in the penumbra, and also for a considerable distance on either side of the spot, but usually single in the umbra. As spots seem to be always surrounded by faculæ, which frequently encroach upon the penumbra, the double reversals occur in these just as they do in faculæ not in the vicinity of spots. The single reversals in the umbra, however, probably take their rise in the chromosphere, which presumably overlies the cooler regions of the spot.

Kenwood Observatory, University of Chicago.

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* In one case where the motion of the entire prominence was considerable, a large number of lines in the ultra-violet (all that were visible on the photographs) were equally displaced with H and K.

† See my article on "The Ultra-Violet Spectrum of the Solar Prominences" in this number of *Astronomy and Astro-Physics*.

* Annals of Harvard College Observatory, Vol. XVIII., No. 5, p. 100.

† *Astronomy and Astro-Physics*, October, 1892.

‡ See Fenyl, *Astronomy and AstroPhysics*, May, 1892, p. 431.

General and Photographic Chemistry. — XIV.

BY E. C. CONRAD, F.C.S.

THE NON-METALLIC ELEMENTS AND THEIR COMPOUNDS.

(Continued from page 481, Dec., 30th, 1892.)

Potassium Ferrocyanide.—P. : Forms large, transparent, yellow-coloured crystals soluble in two parts of hot or four parts of cold water, forming a yellow-coloured solution. The crystals are insoluble in alcohol, they are permanent in the air, and have a saline taste. On gently heating, the crystals become anhydrous, and if further heated to a high temperature are entirely decomposed. This salt has no poisonous properties. U. : Potassium ferrocyanide is an important chemical reagent. It is the compound from which all other cyanides are obtained, and is largely used for the production of Prussian blue. A solution (1 in 20) of this salt is used in medicine. U. P. : In the blue printing processes, a solution of this salt acts as a restrainer in development, and is said to be superior to potassium bromide, preventing fog, and promoting the formation of brilliant negatives. It can be used with most developers, with the exception of those containing iron. *Tests.*—See end of paragraph on "Formation of Prussian blue."

Potassium Ferricyanide, red prussiate of potash, K_3FeCy_6. —M : By passing a slow stream of chlorine gas into a dilute olution of potassium ferrocyanide. Eq. : $4K_4FeCy_6 + Cl_4 = 4KCl + 4K_3FeCy_6$. The solution turns a dark reddish-green colour, and is then evaporated, filtered, and left to crystrallize. The salt is purified by recrystallisation. P. : Potassium ferricyanide forms small prismatic ruby-red crystals, permanent in the air, and soluble in four parts of cold water, forming a dark-green-coloured solution. U. : As a reagent, and in medicine (1 in 20). U. P. : In the "blue" processes, and as a reducer for negatives and prints. *Tests.*—See paragraph on formation of Prussian blue.

The Formation of Prussian and Turnbull's Blues.—When a solution of potassium ferrocyanide is added to a solution of any ferric salt, a dark-blue precipitate, consisting of ferric-ferrocyanide, $Fe_3Fe_4Cy_{18}$ or Fe_7Cy_{18}, with eighteen molecules of water, is formed and is known as Prussian blue. It is best prepared by using the ferric chloride or nitrate, and the following equation may be taken as representing the change: $3K_4FeCy_6 + 2Fe_2Cl_6 = 12KCl + Fe_7Cy_{18}$. The commercial Prussian blue is, however, usually prepared by precipitating potassium ferrocyanide with ferrous sulphate, and the white precipitate formed is then oxidised by exposure to the air or the action of acids.

The result is a mixture of various blue colours having such formulæ as $K_2Fe_6Cy_6$ and $KFe\,Cy_6$ in variable quantities with the true compound. P. : Moist Prussian blue is a bulky precipitate which shrinks to a much smaller compass on drying and forms a hard brittle substance resembling *indigo* in appearance. Prussian blue burns if heated in the air, leaving a residue of ferric oxide. Subject to a high temperature in closed vessels it entirely decomposes. Prussian blue is quite insoluble in water and dilute acids, with the exception of a solution of oxalic acid. Alkalies destroy the colour instantly. Slight alterations in the method of manufacture affect the resulting compound; thus, if the ferric chloride solution is added to the potassium ferrocyanide a *soluble* variety of the blue is produced. There is also an inferior quality called *basic blue* containing alumina (Al_2O_3) which adds to the weight, but impairs the colour; it is obtained by the addition of alum to the ferrous sulphate used in the manufacture. U. : As a pigment for oil and water colours and in dyeing, and as an ink. *Turnbull's blue* is produced by the addition of potassium ferricyanide to a solution of a ferrous salt. It has the formula Fe_5Cy_{12}, and is of a brighter tint than Prussian blue, which it closely resembles. It is largely used in dyeing. It will be seen from the foregoing that *potassium ferrocyanide* acts as a test for *ferric* salts, and *potassium ferricyanide* for *ferrous* salts. Silver nitrate give a white precipitate with the first salt insoluble in ammonia, soluble in potassium cyanide; with the second salt this reagent gives an orange-coloured precipitate soluble in ammonia. For a description of the acids corresponding to the above potassium compounds, viz., H_4FeCy_6 and H_3FeCy_6, and also the other salts and acids containing oxygen in combination with the radical CN and the organic derivatives of these, the larger manuals must be consulted. *Potassium Thiocyanate*, potassium sulphocyanide, KCnS. M. : By gradually heating to a low red heat in closed vessels a mixture of potassium ferrocyanide, potassium carbonate, and sulphur. The mass is then treated with water, the aqueous solution evaporated, and the residue extracted with alcohol from which the crystals of the salt are deposited on evaporation. The sulphur and potassium ferrocyanide react together on heating. Eq. : $K_4FeCy_6 + S_6 = 4KCnS + Fe(CnS)_2$ and the carbonate reacts with the iron salt to produce a further quantity of potassium thiocyanate.

COMPOUNDS OF CARBON AND HYDROGEN.

The hydrocarbons already known constitute by far the largest number of compounds embraced in chemistry, and it is certain that a very large proportion of the possible combinations of these elements remain to be discovered. This large number of compounds is principally due to the special peculiarity the carbon atoms possess of uniting together without the intervention of any other element. Carbon being a tetrad requires four atoms of hydrogen to form a saturated compound (CH_4), and such a compound can only unite with another radical (single or compound) by the replacement of one or more of its hydrogen atoms. Thus if two molecules of the above be imagined united together, a body having the formula C_2H_6 will be produced, differing from the first term by CH_2. The same thing may be repeated *ad infinitum*, resulting in the formation of a number of series, the members of which differ from one another in a regular gradation. The following are the most important.

Name of Series.	General Formula.	Examples of Compounds.
Paraffin series	CnH_2n+2	CH_4 C_2H_6 C_3H_8 C_4H_{10}
Olefine ,,	CnH_2n	C_2H_4 C_3H_6 C_4H_8
Acetyline ,,	CnH_2n-2	C_2H_2 C_3H_4 C_4H_6
Terpene ,,	CnH_2n-4	C_3H_2 C_4H_4
Benzene ,,	CnH_2n-6	C_4H_2

If the examples are taken horizontally, they form a *homologous* series; that is a series in which each term differs by CH_2 from those contiguous to it. If the examples are taken vertically they form an *isologous* series, or one in which each term differs by H_2.

Besides the above there are many other similar series formed by the replacement of the hydrogen by chlorine, bromine, etc., forming derivatives of the hydrocarbons. Eq. : CnH n + ICl series CH_3Cl, C_2H_5Cl etc.

(To be continued.)

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The City Press Agency have sent us a pamphlet descriptive of the World's Fair Co-operative Bureau and Andreas-Hotel, which offers considerable inducements to intending visitors, and dark-rooms will be provided for visitors.

A Chemical Study of Mercurial Intensification.*

By Chapman Jones.

In January, 1890, I read a paper before this Society, "On Control in the Density of Negatives" (*Photo. Journal, N.S.*, xiv., 40), and therein described the action of mercuric chloride upon a silver image and of ferrous oxalate upon the bleached image. The effect of sodium sulphite instead of ferrous oxalate was also shown so far as the character of the resulting image is concerned. Since that time I have further studied the changes taking place during mercurial intensification, and I beg to lay before the Society those of my results that are of practical interest to photographers. I have obtained further evidence that the action of mercuric chloride upon metallic silver gives a double salt and not a mere mixture of silver and mercurous chlorides, which, with other matters of a purely chemical interest, will probably be published elsewhere.

The action of mercuric chloride upon the silver image is perfectly definite, but in practice it is found difficult if not impossible to prevent the mercury salt from combining with the gelatine, when it is employed in a plain solution, and to prevent this it is usual to add a little hydrochloric acid. The small amount of acid generally used, and it cannot be increased or frilling will result, is very desirable, but it should be applied with the mercuric chloride and not afterwards, because in the absence of mercuric chloride it is liable to affect the bleached image. Hydrochloric acid when strong and hot dissolves out all the silver and half the mercury from silver mercurous chloride, leaving half the mercury in the metallic state, thus:—

$$2AgHgCl_2 = Hg + HgCl_2 + 2AgCl.$$

If the acid is weak, the silver chloride remains almost entirely with the mercury, and the effect is practically a loss of mercury. This change, however, cannot take place in the presence of excess of mercuric chloride, therefore the acid generally added to the mercury solution employed for intensification is harmless to the image.

It has been suggested to add ammonium chloride to the mercury solution presumably for facilitating the solution of the mercuric chloride. This addition is not to be recommended, because mercuric chloride is quite soluble enough in water alone, and ammonium chloride, if it should have opportunity to act upon the bleached image in the absence of mercuric chloride, would lead to a loss of mercury. Its final effect when hot is to dissolve out two-thirds of both the silver and the mercury leaving the rest in the metallic state. There is not the same safeguard in the use of ammonium chloride that there is in the case of hydrochloric acid, because large quantities may be present without injury to the film, and as it is unnecessary, it is better to avoid the possibility of irregularity that results from its use.

I have investigated the action of several reagents upon silver mercurous chloride to elucidate the changes that take place when the image, after bleaching it with mercuric chloride, is blackened by the various methods that have been proposed.

Action of Sodium Sulphite.—In the previous paper the action of sodium sulphite was expressed thus:—

$$4AgHgCl_2 = \underbrace{3HgCl_2 + 2AgCl}_{\text{Dissolved by the sodium sulphite.}} + Ag_2Hg.$$

To this I can now add the statement that the mercuric chloride dissolved forms mercuric sodium sulphite, thus:—

$$HgCl_2 + 2Na_2SO_3 = Hg(NaSO_3)_2 + 2NaCl.$$

The silver chloride is doubtless changed into sulphite which is dissolved by combination with sodium sulphite, but the proportion of the sodium salt required is not so certain as in the case of mercury. One molecule of silver chloride appears to require as a minimum about four molecules of sodium sulphite to dissolve it, but practically more must be used to avoid secondary changes.

The action of sodium sulphite may therefore be written:—

$$4AgHgCl_2 + 7Na_2SO_3 + xNa_2SO_3 =$$
$$2Ag + Hg + 3Hg(NaSO_3)_2 + Ag_2SO_3, xNa_2SO_3 + 8NaCl,$$

where x is equal to seven and more. The large quantity of alkaline sulphite necessary to dissolve the silver chloride doubtless leads to the leaving of silver chloride or sulphite in the image when an insufficiency of sodium sulphite is employed. This may account for the thinning action of hypo upon an image intensified with mercury and sulphite which has been observed, though I have never myself noticed this effect.

As stated in my previous paper, if the sodium sulphite solution with the salts that it has dissolved is allowed to remain in contact with the metals left as residue, the mercury in the residue will dissolve and metallic silver will take its place. But if intensification is carried out in the ordinary manner this action is not likely to take place.

It may be remarked in passing how greatly inferior sodium sulphite is to sodium hyposulphite as a solvent of silver chloride. The figures given above indicate that, taking the two crystallised salts, the former is only about one-third as efficacious as the latter, weight for weight. But this proportion must not be relied upon too implicitly for practical purposes, because a considerable excess of the sodium salt must be taken in both cases to avoid secondary changes, and it is probable that a larger excess is needed in the case of the sulphite. Nor does this comparison include any difference in the rapidity of action of the two salts. It appears that sodium sulphite acts more slowly than the other, and that for this reason also, a greater excess of it would be desirable if it were to be used for practical purposes as a fixing agent.

In the continuation of the investigation of the action of sodium sulphite, I have been ably assisted by my colleague, Mr. W. Kirman, to whom I offer my best thanks.

Action of Sodium Hyposulphite.—Sodium hyposulphite rapidly blackens silver mercurous chloride, and if an excess of it is used from the first, the change is of a simple character, and may be expressed thus:—

$$3AgHgCl_2 = Hg + Ag + 2AgCl + 2HgCl_2.$$

That is one-third of each of the metals is left in the metallic state, the two-thirds being dissolved. The silver chloride is, of course, changed into the double hyposulphite, as is well known, but there is no sufficiently definite information about the hyposulphites of mercury to enable one to state in what form it is dissolved. If the sodium hyposulphite is not in excess from the first, then sulphides of the metals are produced, and also sulphuric acid which causes the precipitation of sulphur from the solution. By prolonging the action of the hyposulphite, the metallic mercury dissolves precipitating silver from the solution.

Action of Potassium Cyanide.—Potassium cyanide in solution blackens silver mercurous chloride with great readiness, and gives, like sodium hyposulphite, one-third of each of the metals in the residue. Its action may be written thus:—

$$3AgHgCl_2 + 8KCy = Hg + Ag + 2KAgCy_2 + 2HgCy_2 + 6KCl.$$

But the action of the resulting solution upon the residue is different from that observed in the previous cases, for the metallic silver dissolves precipitating mercury.

Potassium cyanide is of no use as a follower to mercuric chloride in intensification on account of the rapidity with which it attacks both silver and mercury when they are so finely divided as they are in gelatine films. It is probable that it was to avoid this solvent action that potassium cyanide was first saturated with silver cyanide, and this addition certainly does prevent the loss of the image, but it also profoundly alters the reaction that takes place.

Action of Potassium Silver Cyanide.—Potassium silver cyanide is produced by adding silver cyanide (or silver nitrate) to a solution of potassium cyanide until there remains an excess of silver cyanide which the solution is unable to take up. The use of such a solution after mercuric chloride (or bromide) has often been commended, since H. J. Burton described the process in the *Year Book* for 1873 (p. 97), and it gives a vigorous intensification of a good black colour with the minimum chance of staining or like trouble. Mr. Burton very wisely and properly recommends this method for negatives of line subjects only, but others have since applied it to negatives of all sorts.* I have been bold enough, however, to condemn such intensification of half-tone negatives, chiefly because the prolonged application of the blackening solution thins the image. Some time ago I pointed out, and Messrs. Hurter and Driffield have subsequently confirmed my observation, that reduction of the image by such a process changes the character of its density gradation. But even if there were no change of gradation, the reduction following the intensification leads to uncertainty, and the perfecting of technical photography demands the elimination of uncertainty. I am now in a position to condemn this method of intensification more emphatically, because also of the composition of the resulting image and because of its want of uniformity.

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* Read before the P.S.G.B.

* Since writing this paper, Mr. H. J. Burton has kindly informed me that the cyanide method of intensification was told to him twenty-four years ago by an operator working at the British Museum, who learned it from another operator. Mr. Burton adds that "the method was worked in this way. A portion of the ordinary fixing bath of cyanide of potassium was put into a glass measure, and a little of the intensifying solution added, and this was poured over the negative after treatment with mercury bichloride. Finding that if the cyanide of potassium was in excess the action was irregular, I prepared it in the manner published by me. For many years I have been in the habit of adding to the solution, after the whole of the cyanide of potassium has combined with the silver, a small piece of hyposulphite of soda. This addition gives the negative an intense black colour instead of an olive black." So far, therefore, as I have been able to get at the facts of the case, it appears that the cyanide method of intensification ought to be called Burton's, and not Monckhoven's, if any name is to be attached to it.

The primary action of potassium silver cyanide upon silver mercurous chloride may be expressed thus :—

$$AgHgCl_2 + KAgCy_2 = Ag + AgCl + HgCy + KCl.$$

The residue contains therefore as metal all the silver originally present, and to this has been added an equivalent quantity of silver in the form of chloride. This result is highly desirable, and if only we could stop here, the method would be worthy of the highest appreciated, because it would only remain to reduce the silver chloride, and the image would be of pure metallic silver in double the quantity first present. But there are secondary reactions which appear to be inseparable, or at least inseparable with any degree of certainty, from the primary change.

The silver chloride by reaction with more potassium silver cyanide is replaced partially by a double equivalent of silver cyanide, thus :—

$$AgCl + KAgCy_2 = 2AgCy + KCl;$$

and the silver chloride that remains holds to itself some of the mercuric cyanide so tenaciously that prolonged washing only slowly removes a part, the remainder resisting apparently any amount of washing.

The residue, therefore, consists of the metallic silver originally present, with silver chloride, silver cyanide, and mercury cyanide. By prolonging the action of the potassium silver cyanide, the silver chloride and the mercuric cyanide will decrease, the silver cyanide will increase, and the metallic silver will tend to dissolve. By prolonging the washing the mercuric cyanide will decrease. Thus one cannot tell what may be finally present, and the composition of the images of different negatives intensified by this process cannot be expected to be identical. The image itself is not permanent; it is affected by light. It is obvious that this method of intensification may be repeated on the same negative, but this is scarcely an advantage, because one application of the process is likely to give too much density.

Sodium hyposulphite thins the intensified image, leaving only the metallic silver, and it appears that it is possible in this way to remove all that the intensification has added to the image. But it would not be well to rely too much upon this, because finely divided silver is readily attacked by alkaline cyanides, and there might therefore be an accidental loss of metal.

Action of Alkalies.—Ammonia readily blackens silver mercurous chloride, and the general idea appears to be that the silver chloride is dissolved, and that mercurous ammonium chloride remains. This is not the case, for though some silver is dissolved the greater part remains in the residue. I have not yet completed my examination of this reaction, but my results point to the probable production of two compounds in varying proportions, namely $NH_2AgHgCl$ and $NHAgHg_2Cl$. Almost the whole of the mercury remains in the residue.

Caustic soda immediately blackens silver mercurous chloride, replacing the chlorine by oxygen, but the action is very difficult, if not impossible to complete. It is without doubt the silver chloride that is so tardily affected. The residue consists of mercurous oxide, silver oxide, and silver chloride. If the alkali is allowed to absorb carbonic acid by exposure to the air, mercury will be dissolved.

Sodium carbonate acts more tardily than caustic soda, and dissolves a considerable quantity of mercury.

Practical Conclusions.—Whatever methods of intensification may suffice in occasional emergency, I submit that we should have for regular use a method that works in an exact and definite manner, that can be allowed to proceed to completeness without the possibility of any other change setting in to make the final result uncertain, one that does not produce too great an increase of density, and that leaves a permanent image of simple and definite composition, which can, if necessity arises, be treated for further intensification or other effects with the same facility as the original image. This is the more important, because it is impossible to be sure of getting the density required by simple development when various subjects have to be photographed under various conditions. It is also impossible, without falsifying the gradation, to develop too dense and afterwards reduce to the desired condition. By the use of mercuric chloride followed by ferrous oxalate the conditions stated are realised, and I do not know of any other intensifier of which this can be said. Since I drew attention to this matter three years ago, the method has been varied by one and another in the replacement of the ferrous oxalate by alkaline developers. This change is not desirable, because of the uncertainty introduced as to whether or no the alkali has produced its characteristic change to a certain extent. Ammonia leaves an image of a complex and variable composition, and sodium carbonate has a tendency to dissolve mercury, therefore allowing that oxides as well as chlorides are reduced by the developer to the metallic state, the presence of any alkali makes the change uncertain.

I believe that any photographer who takes the trouble to master the few difficulties that attend the use of mercuric chloride followed by ferrous oxalate, will be very loth to use any other method for half-tone negatives. The two chief precautions necessary are to eliminate the hypo that remains after washing before treating the negative with mercuric chloride, and to wash away the excess of mercuric chloride before using the ferrous oxalate. The first is done by a few minutes' soaking in an acidified alum solution; and by applying the ferrous oxalate in a dull light, such as is used for manipulating carbon tissue and printing out papers in, if a little mercuric chloride is left when the ferrous oxalate is added, its only effect will be to retard the blackening of the image.

Making Lantern Slides at night by Reduction.*

BY A. L. EIDEMILLER.

THERE is certainly no better or more pleasing way of showing our work than by the use of the stereopticon and lantern slides.

A proof of this is that an announcement of a lantern exhibition will nearly always draw a good-sized audience, and it is almost actually necessary nowadays for a lecturer to make use of this means of illustrating his ideas.

A number of our members have never made lantern slides. They have probably never investigated the process far enough to see how exceedingly simple it is, and I will endeavour to show you this evening one of the methods used. Lantern slides are made either by "contact," or by reduction" from the negative by means of the camera.

The contact plan is most generally adopted by amateurs because of the ease with which it is done, and also from the fact that it can be done at night. This plan is all very well when you have small negatives, but even with 4 by 5 it would be better in the majority of cases to make the slide by reduction, and with large negatives this is absolutely necessary. The ordinary way of making slides by reduction is to place the negative (film side towards the camera) in a north window, with a piece of ground-glass behind it. Then put a lantern plate in your plateholder, and after getting the proper-sized image on your focussing screen, make the exposure and develop the same as if made by contact.

An advantage obtained in reducing is that a soft slide may be made from a harsh negative, and by proper exposure and development a good slide may be made from a negative so thin and flat that it will not yield a passable silver print. Another reason is that it is practically impossible to get perfect contact in a printing frame with the ordinary lantern plates, while by copying in the camera it is a very easy matter to make the slides absolutely sharp. But in order to make slides by reduction we must have daylight, at least that is the general supposition. Not many amateurs, in this city, at least, have much time to devote to this kind of work in daylight, and I will demonstrate to you this evening how I make slides by reduction at night, using magnesium ribbon for illumination. I have constructed a frame consisting of two uprights with two grooves on the inside. The uprights are just far enough apart so that a glass 10 in. wide will slide between them, and they are 12 in. high. In one groove I slide a 10 by 12 ground-glass, and in the other I place the negative. If it is 10 by 12 it just fits, if it is smaller I put the lower end in the groove at the bottom of the frame and lower a strip that slides in the side grooves down until it reaches the top of the negative. I place this frame on the table and draw the camera stand up facing it. After once adjusting the height it is hardly ever necessary to change it for the same-sized negatives. I then focus as usual, using a candle behind the ground-glass to illuminate the negative. When everything is ready I cut off from 3 in. to 6 in. of magnesium ribbon, according to the density of the negative, and hold it in a pair of pliers, light it at the candle, and pass it rapidly back and forth behind the ground-glass and negative. The secret of success in this is to be rapid and give the whole negative equal illumination.

I made a few failures in this before I succeeded in getting the negative evenly illuminated, but after a few trials it is very easy.

* * *

Oxford National History Society.—The annual meeting was held on Thursday, 2nd inst., in the large lecture-room, University Museum. The proceedings commenced with the election of officers. Mr. E. A. Ryman-Hall remains President of the Photographic Section. Mr. H. M. J. Underhill gave a most interesting lecture on "Folk Tales, Norwegian, Indian, Irish, and English," the tales being illustrated by means of a splendid limelight lantern, and slides made by the lecturer. Mr. E. A. Ryman-Hall (President of the Oxford Photographic Society) afterwards exhibited some fine frost scenes, taken in the parks at Oxford. Mr. R. A. R. Bennett (Treasurer of the O. P. S.) exhibited some enlargements and chloride emulsion prints of local and general interest.

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* Read before the Minneapolis Camera Club.

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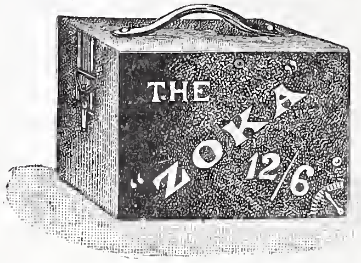

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Exhibitions.

SOCIETY.	ENTRIES CLOSE.	OPENS.	CLOSES.	ADDRESS OF SECRETARY.
Durham City Camera Club..	Feb. 3	Feb. 14	—	R. Hauxwell, The Avenue, Durham.
Torquay Photo. Soc.... ...	Feb. 3	Feb. 14	Feb. 18	H. C. Howell, Nutley, Torquay.
Woolwich Polytechnic Phot Soc.	—	Feb. 16	Feb. 18	W. Dawes, 145, Chesnut Rd., Plumstead.
Holborn	—	Feb. 18	Feb. 20	F. J. Cobb, 3, Albion Grove, Barnsbury, N.
Manchester Amateur Photo. Society	—	Feb. 21	Feb. 25	Randolph Gilmore, 1B, Cooper St., Manchester.
Blackheath Camera Club ...	Slides, Feb.28; Prints, Mar. 1	Mar. 3	Mar. 4	C. W. Piper, 46, Shooter's Hill Road (slides); Thos. B. Earle, The Art Club, Bennett Park, Blackheath (prints).
Fillebrook Atheneum ...	Feb. 20	Mar. 1	Mar 2	J. W. Spurgeon, 1, Drayton Villas, Leytonstone.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B.
Philadelphia (U.S.A.) Phot. Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia. U.S.A.

Societies' Notes.

THE annual dinner of the Photographic Society of Great Britain will be held at 6.30 p.m., on Monday next, the 13th inst., at the Café Royal, Regent Street. Captain W. de W. Abney, C.B., R E., will preside. Tickets, 6s. each, can be obtained from Mr. W. England, 7, St. James' Square, Notting Hill, W., or from the Assistant Secretary. The annual general meeting will be held at the Society's Rooms, at 8 p.m., on Tuesday, the 14th inst.

* * *

IN connection with the affiliation of photographic societies with the P. S. G. B., the first of the lectures and demonstrations by Mr. Denison on "Photogravure" will be held on Friday, the 17th inst., at Bloomsbury Hall, Hart Street, Bloomsbury, W.C., at 8 p.m.

* * *

THE Bath Phot. Soc. have appointed a sub-committee to consider the question of instituting a photographic survey of their district.

Societies' Meetings.

Barrow.—A meeting was held on 3rd inst., when the prize slides from a contemporary where shown on the screen to a good attendance of members and friends. Mr. A. Blechynden presided, the description being given by the Rev. J. McMillan in his usual humorous and effective manner. The lantern was manipulated by Mr. J. Timms. Generally speaking, the slides were of good quality, with a few exceptions. The flower studies were gems, and were thoroughly enjoyed. The sea scenes and athletic sports had many admirers, also the portraiture by Mrs. Clarke. At the conclusion the Chairman gave a short address on the advances made by photography in recent times.

Bath.—An ordinary meeting was held on 25th ult., Mr. Austin King (President) in the chair. The Chairman made several announcements, and referred to the appointment of two sub-committees—one under under the chairmanship of Mr. Pumphrey to draw up a scheme for a photographic survey of the district, and the other to confer with the other Technical Education Committee with a view to widen the knowledge of photography. Messrs. E. J. Appleby and J. A. Howe were unanimously appointed auditors of the accounts. Mr. W. Pumphrey then gave an illustrated lecture on the Channel Islands. By way of preface he said his photographic slides were all reduced in the camera (wet collodion) from half-plate gelatine films; only by the means adopted he thought it possible to secure some of the pictures to be shown. He then proceeded in his well-known felicitous style to display and explain a number of pictures representing views on four of the principal islands, some of which were obtained with difficulty and some personal risk.

Birmingham.—A very instructive meeting was held on 31st ult., when a non-competitive exhibition of members' negatives was held. The object of the exhibition was to place before the general members, and especially the beginners among them, a standard of good work. The exhibition was eminently a success. Upwards of 100 negatives were shown, the work of sixteen members, and these were displayed to the best advantage.

Croydon (Camera).—January 30th, Messrs. J. Patrick, E. Peirce and R. Lock were elected members. The President explained certain advantages accruing to those societies who were affiliated to P. S. G. B. The question was, for want of time to discuss it, adjourned. Mr. B. Gay Wilkinson described and showed the procedure of making lantern slides by reduction to a numerous assemblage of members. Both the apparatus used and the methods pursued emphasised that the surprising excellence of the lecturer's work was the outcome of very simple means.

Douglas.—At a meeting on the 23rd ult., Mr. Mathieson gave a lecture on "China and Japan," illustrated by slides from negatives taken by himself and friends. It was very interesting, as the lecturer gave his personal experience amongst the Chinese. The slides of Chinese bridges were very fine, and the interiors of the opium dens excited considerable curiosity, as we could well understand the difficulty of obtaining photographs of such places.

Glasgow.—The third general meeting was held on the 2nd inst., Mr. William Lang, jun., F.C.S., President, in the chair. Mr. J. C. Oliver was elected a member. Mr. John Stuart gave a very interesting demonstration of printing in platinum and gelatino-chloride papers. Of both processes a large series of prints were developed or toned and finished ready for mounting.

Hackney.—Meeting held on 31st ult., Mr. G. J. Avent in the chair. The Hon. Secretary passed round an arrangement for fixing on any ordinary gas-jet for use with limelight. It prevented the tube buckling, and was readily applied. From the question-box, "Do the fumes of ammonia cause permanent irritation to the mucous membrane of the throat, eyes, and nose?" Mr. Debenham said in olden days it was used strong, and he had chronic pharyngitis through it. Mr. Nunn said he had been troubled with a sore throat which his doctor attributed to the use of ammonia. Mr. Gear said he had killed a mouse with it in two or three seconds. Question 2: "What is the effect of a sample of hypo on prints after toning?" It was said that a bad sample would probably be acid, and set free sulphur which ammonia would correct. Question 3: "Which is the better light for reproducing a faded photograph—artificial or day light?" Mr. Debenham said it depended on the subject; if yellow, daylight would be the best. Lamplight would add yellow all over and defeat its own end. He had used a violet-blue light to increase the non-orthochromatic effect where the faded half-tones were yellow. Mr. Debenham then proceeded to give his demonstration on "Transparencies by the Carbon Process." The first thing to do is to get the tissue, which is coated with gelatine, mixed with a pigment unsensitised. Sensitise before using with 1 oz. of bichromate potash to 1 quart of water, with or without ammonia, preferably without. The gelatine and bichromate act together and produce an insoluble substance which does not swell in water. The pigmented film must be developed from the back, otherwise it would wash off the paper, unless for transferring, then apply a new support cemented by india-rubber varnish to film, and wash away the first paper. The lecturer preferred red chalk tissue. Colours were various, and sixteen or twenty different ones could be obtained. In drying, glass was perhaps better, at any rate would keep better, as there was less chance of bichromate remaining, and less chance of distortion. It was very slightly sensitive whilst wet; may be dried some distance from the fire. Edges must be covered during printing, and a photometer was necessary to gauge it. He showed one he had had with about three dozen photos on of different densities. Red-chalk tissue may be toned and intensified by staining the gelatine with ordinary ink or other dyes. Mr. Debenham preferred permanganate of potash (10 gr. to 1 oz.). Transparencies were then made and handed round. Mr. Gear had used transparency tissue and preferred it to the red chalk. He preferred ordinary bromide plates to carbon, and thought that with the latter there was a slight blurring. Mr. Beckett said he thought this was hardly correct, as the Woodbury lantern plates were most admired of any. Mr. Gear said he cleaned his glass with nitric acid, and washed them before talcing. Mr. Debenham said this was unnecessary, for if they were properly talced once, the holes, so to speak, of the glass would easily fill up and remain so.

Halifax.—On 27th ult., "Photography 1892 Prize Slides" were exhibited. There was a good attendance of members and friends, who thoroughly appreciated the exhibition. Also on 31st ult, at an ordinary meeting of the club, a paper was read by Mr. A. T. Gray on "Stereoscopic Photography," treating on the theory as well as the practice of that branch of the art. Several specimens of stereoscopic pictures and transparencies were shown.

Harringay.—On the 2nd inst. a demonstration was given on Bromide Enlarging by the President (Mr. D. Towers). The chair was taken by Mr. F. Bennett. The demonstrator used a restrained ferrous oxalate developer, the result being a perfect picture on Morgan and Kidd's paper. Three new members were elected, and the Secretary read the request for affiliation from the P.S.G.B.

Kensington and Bayswater.—A meeting was held on the 6th inst., presided over by the Hon. L. M. St. Clair. Mr. Crouch gave a lantern demonstration on behalf of Mr. A. R. Dresser (who was prevented from coming through illness), the subject being "The Uses of a Hand-camera," illustrated with pictures taken with a Crouch-Dresser hand-camera.

Leeds—Meeting was held on 2nd inst., Mr. Warburton, Vice-President, in the chair. Mr. T. Illingworth, of Halifax, gave a demonstration on development. In the first place he advised amateurs against the use of rapid plates, and stated that he found ordinary plates serve him for almost all purposes. He stated that he had a preference for the Barnet ordinary plate, and developed with Mawson and Swan's pyro-ammonia formula. He developed six plates exposed in the studio, same subject, one 5 sec., and one 15 sec.; for these he used 12 dram. pyro solution, 8 dram. ammonia solution, 3 minutes to develop. Then one 20 sec., and another 30 sec.; used 12 pyro, 6 ammonia, 7 minutes to develop. One 40 sec., and one 60 sec.; used 16 pyro, 6 ammonia, 15 minutes to develop. He then made a transparency by contact from another negative, 40 sec. exposure, 5 ft. from an ordinary gas-burner, developed with 12 pyro, 8 ammonia, all of which proved a complete success. It was difficult, indeed, to tell the difference between the long and short exposures.

Lewes.—The members had on the 2nd inst. a most enjoyable evening listening to an interesting lecture by Dr. Collins on his visit to the North of Scotland—Scourie and the neighbouring islands more particularly. These islands are the breeding-place of enormous numbers of gulls, puffins, guillemots, and other sea-birds. Lantern-slides were shown of the places of interest *en route*, the journey being by rail to Lairg, and thence by coach to Scourie, the nearest place on the coast to the island of Handa, where the birds principally congregate. On the face of the precipitous cliffs of this island the gulls and others crowd, every ledge and crevice in the rocks being in the breeding season covered with their eggs. Dr. Collins had secured some very fine effects of sea, cloud, and cliff, showing the birds in flight and settled on the rocks.

Leytonstone.—Ordinary meeting held on the 2nd inst., Mr. A. E. Bailey in the chair. Mr. L. E. Morgan, from Messrs. Fuerst Bros., gave a most able demonstration on the uses of the new developing agent, amidol. Having previously exposed a plate, he developed same most successfully with amidol, giving every advantage, with half-tone and density possessed with pyro, but without the stain. Bromide paper and lantern plates were next dealt with, and all with a one-solution developer and with the same success, after which Mr. Morgan was deluged with enquiries, to all of which a most lucid explanation was given.

Liverpool (A.P.A.)—The second of the Thursday evening practical demonstrations was given on 2nd inst. by Mr. E. M. Tunstall, on "Lantern-Slide Making." All points of a nature likely to lead to failure were fully explained, including suggestions as to the best negatives, exposure, and development. The lecturer strongly urged that the developer recommended by the maker should be used. He, however, preferred hydroquinone as the simplest and as a good all-round worker. After several example plates had been treated, at the suggestion of Mr. Tunstall, Mr. G. A. Carruthers was asked to show the members his method of making slides by reduction by artificial light. This was done in a Pearson and Denham's reducing camera by an exposure of six inches of magnesium ribbon burnt behind the negative (a 5 by 4 film), with a sheet of ground-glass between the negative and the light, and by moving the magnesium ribbon about while burning to ensure even lighting, the result being a perfect slide with not the slightest sign of uneven lighting. A Mawson plate was used, this in the opinion of the lecturer being one of the fastest and most reliable plates for the experiment. After a vote of thanks to Mr. Tunstall, the Chairman announced that next Thursday Mr. Chas. A. Kohn, Ph.D., B.Sc., of the Liverpool University, would deliver a lecture on "The Chemistry of Photography."

* * *

SOCIETIES' FIXTURES.

Feb. 9.—Liverpool (A.P.A.)—"The Chemistry of Photography," Chas. A. Kohn, Ph.D., B.Sc.
,, 9.—Oldham.—"Gelatino-Chloride Printing, etc.," Mr. W. Thompson.
,, 9.—Elizabethan.—"Barnet, Old and New, and Barnet Fair," Messrs. Matthews and Samuels.
,, 9.—Aston.—"How to Develop on Tour," Mr. W. Tylar.
,, 9.—London and Provincial.—First Technical Lecture of the series: "The Lens."
,, 9.—Birkenhead.—Ordinary Meeting, "Bromide Printing," Mr. J. W. Welch; Short Lantern Lecture, "Description of 'Emral,' a Deserted Mansion near Chester, Mr. F. Hope Jones."
,, 10.—Glasgow High School.—Lantern Evening.
,, 10.—Halifax.—"Landscape Photography," Mr. Jones.
,, 10.—Holborn.—"Cloud Negatives, and how to Take them."
,, 11.—Haltwhistle.—Amateur Photographer 1892 Prize Slides.
,, 13.—Richmond.—"The Carbon Process," Demonstration by the Autotype Company.
,, 13.—N. Surrey.—Competition for President's Prize for best Set of Four Prints.
,, 13.—Darlington.—"Slides of Yorkshire Scenery," by the Leeds Photo. Soc.
,, 13.—N. Middlesex—Demonstration on "Enlarging," Mr. H. M. Smith.
,, 13.—Hexham.—Amateur Photographer 1892 Prize Slides.
,, 13.—Croydon.—Annual Meeting. Exhibition of "Holidays with the Camera."
,, 14.—W. London.—"Art and Photography," Mr. A. Horsley Hinton.
,, 14.—E. London.—"Through Ireland with a Facile," Mr. F. W. Hindley.
,, 14.—Hackney.—"Photographic Chemicals," Mr. W. H. Sodeau.
,, 14.—Rochester (Naturalists').—Exhibition of Monthly Competition Slides, *A. P.* "Amidol as a Developer," Mr. L. E. Morgan.
,, 14.—Stockton.—Practical Demonstration on "Enlarging," Mr. W. Downs.
,, 14.—Birmingham Phot. Soc.—Social Evening.
,, 14.—Newcastle.—Amateur Photographer 1892 Prize Slides.
,, 15.—Blackheath.—Members' Lantern Night.
,, 15.—The Photo Club.—Home-made Apparatus.
,, 15.—Wakefield.—"Printing Papers and their Application."
,, 16.—Hull.—Slide Exhibition and Social Evening.
,, 16.—Leigh.—"Peak and Dale" Slides (Mr. W. R. Moore), lent by the Amateur Photographer.
,, 16.—Liverpool (A.P.A.).—"Lenses, Hand-Cameras, Shutters, Exposure Meters, etc.," Mr. W. T. Wilkinson.
,, 16.—London and Provincial.—Demonstration of the "Air Brush," Mr. W. H. Harrison.
,, 17.—Lewisham.—An Evening with Mr. E. J. Wall.
,, 17.—Holborn.—Members' Lantern Night.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer questions by post.
6. In answering Queries, correspondents are requested to mention, in every instance, the *number and full title of the query* referred to.

QUERIES.

5923. **Roller blind shutter.**—Will anyone give full working details of roller blind shutter, as I would like to make one to fit lens hood about 2 in. diameter; also say where fittings may be got—RACHDA.

5924. **Enlarging.**—I should be glad if any reader could tell me whether enlargments can be made with 4-in. condensers from quarter-plate negatives.—FREE-LANCE.

5925. **Loss of Density.**—Lately, after being in the fixing bath the ordinary time, my plates have lost a great amount of density, much of the detail being lost. Could anyone in any way tell me why? My developer is in three solutions:—(1) 10 per cent. pyro; (2) 10 per cent ammonia; (3) 10 per cent. bromide of ammonium. —H. E. B.

5926. **Curing Distortion.**—I have a negative, which is a fairly good one, of an altar. The candles thereon in some instances are distorted so as to look like snakes, though in reality they are perfectly straight. Can I remedy it in any way?—H. E. B.

QUERIES UNANSWERED.

Jan. 20.—Nos. 5911, 5913.
,, 27.—Nos. 5914, 5915, 5916.
Feb. 3.—Nos. 5919, 5922.

ANSWERS.

5920. **Compact Tripod.**—If Joe will send his design to me I will make tripod for him if he wants it made of wood. Editor has my address.—RACHDA.

5921. **Changing Bags.**—My earnest advice to you is, don't have a bag at all. Much the best thing is a small tent, which is very portable, and infinitely more comfortable to work with. I can strongly recommend Fallowfield's "special ventilated portable tent." This costs a guinea, and it only measures 18 by 13½ by 1 in. when folded. I was using one for some time last summer while away, and can conscientiously say that I would not be without it for the world.—R. A. R. BENNETT.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

A. P.—Try Newman and Guardia, 71, Farringdon, Road, or Adams', 81, Aldersgate Street, for changing box.

NOVICE.—You must let us know how much you want to spend, and then we will write you privately.

W. H. WILSON.—We explained the reason of our action; if you are not satisfied we regret it, but can do no more now.

W. D.—The cause of the deposit was either non-elimination of hypo from the negative or else not washing sufficiently after bleaching and before blackening.

T. G. S.—(1) Black doeskin leather is the best material, and the bag should be square. (2) A lever is usually used to raise the front plate. (3) Silvered glass or copper would do, and if you are going to silver it yourself use the silver surface as reflector, not through the glass.

W. HUMMEL.—We insert, and will do our best for you.

BACKGROUND.—You cannot get any cheaper than those you send, and we should choose No. 2.

W. S. NORTON.—Not in England, we think, but try J. J. Atkinson, 37, Manchester Street, Liverpool.

G. WETHERMAN.—We have handed your letter to a firm who will probably write you.

HENRY JONES.—We should advise you to write to some general paper such as *Tit Bits*, but we believe it to be a mixture of gum arabic and dextrine.

E. W. MALE.—It is impossible to get a true stereoscopic effect—you may get a pseudoscopic effect—in the way you describe. If you use an ordinary reading glass of about 4 in. diameter you will be able to use both eyes, or you can use two small lenses. As there are commercial lanternoscopes which are constructed with one large or two small lenses it is unfair to ask us to tell you how to make what our advertisers offer to sell.

J. SIM THAMES.—They are not lens makers, and we have not seen any of their productions, so cannot speak definitely about them.

VERITAS.—We are afraid to recommend you to keep the solution; so far the opinion is that it is better to keep the agent in the dry state and dissolve as wanted.

F. T. THOMAS.—The camera named is as efficient as any at the price.

PHOS.—Our experience is that there is no great gain of light, and we should try No. 2 with triple condensers.

KROC.—(1) Yes, focus exactly as the small boys do. (2) There is no difficulty; make up plenty of solution and dip the films in and keep them in motion, taking care to prevent any part from being uncovered. They can be enlarged from the same as ordinary negatives.

CUPIO DISCERE.—Dissolve 20 gr. of gelatine in hot water, clean your glass well. immerse in the gelatine, lay the damped print on the gelatinised plate, squeegee, and allow to dry.

WAVE.—Green carbon tissue certainly will give you the best results, and these could be developed on glass. Your query *re* new society has been handed to committee.

SCIENTIST.—We should recommend No. 3, and are afraid you will find a 7 in. lens rather too long in focus for snapshot work. We write you privately.

ENFANT.—(1) Negative wants intensifying and the whole of the tower should have been included. (2) Your lens is too short a focus; the perspective in this is strained. (3) Too much foreground, and figures too central. (4) As portraits, probably good but not artistic. (5) Taken wrong way of the plate, and the rail is offensive. All your prints are lacking in artistic merit.

J. IRWIN.—The Peak and Dale slides were made by reduction in the camera on wet collodion plates.

H. M. S.—(1) The camera named is a very fine one, and with the lens quoted would make a capital set for all-round work. (2) We should say about two hours would be enough, and not more than eight half-plates and four whole-plates at a time. (3) Keep all solutions at the same temperature, and place the prints in salt and water after toning and after fixing, or add one part of spirit to every ten of fixing bath.

J. J. RIX.—We sympathise with you, but regret that we cannot admit your letter.

VICAR.—(1) Mason's bath is—

Salt	80 gr.
Ammonium sulphocyanide	15 ,,
Gold chloride	1½ ,,
Distilled water	10 oz.

(2) The Universal Symmetrical would be the best lens.

R. A. R. B.—We have not used the camera much, but it certainly was very efficient. Our trial without sticking and focusing was easily performed.

ZINCO.—We should advise a euryscope. The large aperture is an advantage sometimes in snapshot work.

J. W. K.—(1) Medium isochromatic. (2) You will find it more convenient to use the glycerine and spirit formula of the maker, (3) Always back the plates. The best is—

Caramel	1 oz.
Burnt sienna in paste	1 ,,
Gum arabic powder	1 ,,

(4) The plates are 30 times. (5) Using the back combination the focus is doubled and the diaphragm aperture halved, and the exposure increased four times. (6) It would be preferable to stop down to *f*/11, which would be *f*/22.

C. R.—(1) With a 14-in. lens and 15-in. bellows you could not focus an object nearer than 20 ft. (2) You certainly could focus a portrait in a studio with a 6-in. and 8½-in lens. (3) We believe that there is no single lens in the market which will cover sharply at *f*/8, but for portraiture this aperture is small enough. (5) For all-round work a 12-in. is better than a 14 in. on a 15-in. camera.

AUTHEMION.—(*a*) Toning bath too strong. (*b*) Ditto, and whites yellowed. (*c*) Over-printed, or negative wants intensifying. (*d*) On rough paper this might be made a picture; it wants an inch cut off left. (*e*) Over-printed, or negative weak. (*f*) Over-developed and wants sky. In our issue for Jan. 20th, p. 49, you will find full directions. Use No. 2.

AMATEUR.—You can burnish gelatino-chloride prints, but the surface will suffer from damp. The only thing to do would be to enamel them. The background is a little too near the figures, and the lighting is too one-sided. A half-plate lens will cover a 12 by 10 in enlarging.

J. CLARK. Always number prints, please. (1) Insufficiently toned. (2) Camera not straight; would stand a little deeper printing. (3) Stains due to touching print with dirty fingers. (4) Over-toned (5) Negative wants intensifying. (6) Wants clouds; under-printed and over-toned. (7) Over-toned and too much foreground. (8) Ditto.

INSTANTOGRAPH.—There will be no advantage in keeping the single lens, as you can use the single combination.

A. LAWSON.—Replace your calico by fine muslin, and then you will be able to get soft light; and replace the dark cloth by the calico.

XERXES.—Any chemist will supply you with the citrate salt, which is known as ferri ammon. cit., P.B., or any photographic dealer; and ferric chloride, which is the dry perchloride, may also be obtained from dealer.

J. KIDSON TAYLOR.—Many thanks for letter, which we use.

CABINET.—We write you privately.

S. D. P.—Your letter sent on.

VIE.—Your acid clearing bath may be too strong. Add 1 oz. of powdered alum to every pint of clearing bath.

C. W. CHITTY.—Letter by post.

W. H.—Will lend you slides. Apply again and give date. Will see to other matter.

G. B.—(1) To obtain clear glass backgrounds you must have absolute white or very pale blue. (2) A rather dark grey gives a pleasing ground. (3) Try Adams, Fallowfield, Sharp and Hitchmough, or Schölzig. (4) 8 by 8 would do. (5) We can lend you prints on your paying carriage and booking fee of 1s.

HELEN.—Letter by post.

VERNON.—The following has been suggested for blackening zinc, but we have not tried. Clean the zinc with solution of soda, wash well, and dip into equal parts of chlorate of potash and sulphuric acid, rinse well and coat with asphalt dissolved in benzine.

T. M. BROOK.—A good deal depends upon the caramel. Get a good sample of sacchar. ust. liq. from a chemist, and mix:—

Caramel	1 oz.
Sienna, in paste	1 ,,
Gum arabic, in powder	1 ,,

JAY HAY.—There is not much fault to be found with your prints, although we would suggest that No. 2 might be printed a little deeper.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence.*** *Every additional* ***three words, one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one word****: compound words count as* ***two*** *words.)*

DEPOSITS.—*money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of* 2½ *per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge* 1s.

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of* 3d. *to cover postage.*

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR, AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.****, or a commission of* ***2½ per cent.****, upon the sale price of the apparatus.*

Backgrounds, etc.—Magnificent large plain background, 8ft. 6in. wide, flatted oil, brown one side, slate the other, roller, new, fine for groups, cost 30s, take 12s. 6d. or offers in photographic sundries.—Pearsall, Enville Street School, Stourbridge.

Scenic clouded background, 8 ft. by 90 in., foreground to match, 7 ft. by 5 ft., both flatted oils, perfect condition, the two 12s. 6d., or exchange.—William Hare, Photographer, Sutton, Surrey.

Bicycles, Tricycles, etc.—Splendid pneumatic safety, £8; also light lady's tricycle, £6.—5 John Street, Wolverhampton.

Camera Case.—Splendid camera case, canvas, for 10 by 8 camera, slides, lenses, etc., cost £1 4s., perfectly new, price 16s., or exchange.—Hare, Sutton, Surrey.

Cameras, etc.—Whole-plate camera, one slide, as new, cost, £4 4s., take £3 3s. One half do., do., new, £3 3s., take £2 7s. 6d.—Liffen, Gorleston, near Yarmouth.

Cameras, Lenses, etc.—Quarter plate special brass bound "Instantograph," complete, two double backs, case, etc., cost £3 5s., sell £2 as new.—J. Grose, Junr., Market Street, Falmouth.

Hand Cameras, etc.—First P. O. has my 5 by 4 Kodak Junior (detachable roll holder), unopened roll of film. Cost £10 7s. 6d., take £6 10s., genuine bargain; specimen print for stamp.—Morson, Durham.

Magazine hand camera, carries twelve quarter plates, rack and pinion focussing, finder same size as plate, good lens, lowest cash price 38s. 6d.; 5 qt. size Lacombe's cells; one electric lamp, and a small electric motor, cash 17s.—Harry Turner, 2, Walsh Row, Oxford Road, Leeds.

Tayar's 2 guinea hand-camera, new, three slides, price 30s.—Pedlar, Balmoral Place, Plymouth.

Lenses, etc. Ross' No. 2 portable symmetrical lens, splendid condition, £2 10s.—Rover, 11 Shakespeare Road, Herne Hill, S.E.

Lerebours rapid carte lens, £1 10s.; Voightlander's 9 by 7 wide-angle landscape lens, quite new, cost £2 15s., for £1 15s., or exchange, with cash, for first-class quarter-plate camera and six backs.—Cherry, 40, Great James' Street, London, W.C.

Half-plate rapid rectilinear, Waterhouse stops, splendid definition, new, 13s. 6d.—Albert Durn, Wotton-under-Edge, Glos.

Quarter-plate outfit and photo library for sale; no post-cards answered.—Ed. Mason, Askrigg, R S. O.

Half-plate Middlemiss (Marion). three double dark slides, Beck's Autograph R.R. lens, Kershaw shutter, Ashford's tripod stand, solid leather case and lock, six trays, nine china dishes, measures, dark-room lamp, Godstone print washer, and sundries, £12 10s.; approval; deposit.—Gibbs Palmer, Bicester.

Quarter-plate brass-bound Instantograph, with lens and See-saw shutter, three double backs, four-fold tripod, changing bag, velvet focussing cloth, four dishes, four printing frames, perfect condition, new last season, £3, or offers?—Tweeddale, 95, Weedington Road, Kentish Town.

Half-plate camera, with swing-back, three double dark slides, lens and diaphragms, and mahogany tripod, all in splendid condition, £3, cost £7 when new.—No. 371, office of this paper, 1, Creed Lane, E.C.

Lancaster's 1892 quarter Instantograph camera, splendid lens, shutter, tripod, focussing cloth, three double slides, price £2 5s.; approval; deposit.—Priory Terrace, Plympton.

Sundries.—Exchange any new musical instrument for half-plate camera outfit, also quarter-plate outfit for cash.—Goddard, 107, Bollington Street, Ashton-under-Lyne.

Violin for sale, special bargain. It possesses beautiful full rich tone, and is guaranteed in perfect preservation; would suit lady or gentlemen; very handsome model, with good, fully baize-lined case, excellent bow, tuning fork, mute, resin, and a quantity of good clean music. Accept low figure—viz. 18s. 6d., for the whole outfit. Special opportunity for anyone wanting a bargain. Approval with pleasure, satisfaction certain. All particulars of—Francs Claremont, 35, Christchurch Street, Ipswich.

"Amateur Photographer," volume 16, 16 numbers volume 15, also 13 numbers of "Photography," 5s, 6d. post free.—Biscoe, Hillside, Jersey.

Shutter, etc.—Thornton-Pickard time and instantaneous, 2in. hood, take 12s. 6d., giving it away; Reynolds and Branson's universal time and instantaneous pneumatic, 2¼in. hood, cost 27s. 6d., take 7s. 6d. or offers in photographic sundries.—Pearsall, Enville Street School, Stourbridge.

Washer.—Tylar's quarter aquapoise print and plate washer, new, 2s. 6d.; exchange.—F. Thornton, Bromley Road, Beckenham.

WANTED.

Camera Case.—Wanted, camera case, canvas, half-plate, size. D. Swain, 18, Union Street, Bath.

Hand-Cameras, etc.—Wanted, hand-camera, reflector, focussing, Vanneck or similar type, full details and lowest cash price.—Moorhead, Ardenlee Avenue, Belfast.

Wanted, hand-camera (detective), quarter-plate, Fallowfield's Facile or other first-class make; must be a first-rate instrument; send print and state price to Editor of "Amateur Phototographer"

Cameras, etc.—Wanted, a half-plate camera by good maker, with or without lens, etc.—E., 18, Rodney Street, Liverpool.

Hand-cameras, etc.—Wanted, hand-camera, good condition; approval; deposit.—B. Abbot, c/o Mr. Crowther, Dukinfield.

Dark Slides. — Wanted, double dark slides for cameras, 7½ by 5 and 5 by 4.—No. 369, office of this paper, 1, Creed Lane, E.C.

Sets.—Wanted, first-class half-plate set with all accessories, with or without lens.—No. 370, office of this paper, 1, Creed Lane, E.C.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Hand Cameras.—Lancaster's quarter-plate Rover hand-camera, fitted Lancaster's special Silver Ring rectigraph lens, iris stops, patent see-saw shutter, finder, etc.; in leather case, as new, 63s.; Optimus magazine hand-camera, brass bound, fitted Optimus Euryscope lens, Waterhouse shutter, two finders, carries 12 ¼-plates, grand condition, £4 15s.; Fallowfield's Facile, carries 12 quarter-plates, good lens, shutter, etc., finest condition, £2 12s. 6d.; Optimus detective camera, Optimus rapid rectilinear lens, time and instantaneous shutter, adjustable focus, three double slides, covered leather, two finders, finest condition, £4 5s.; No. 4 regular Kodak, fitted rapid rectilinear lens, time and instantaneous shutter, adjustable focus, two finders, carries 100 films, £6 15s.; No. 1 Kodak, best order, rapid rectilinear lens, shutter, etc., carries 100 films, in leather case, 37s. 6d.; "Ideal," by Adams, rapid rectilinear lens, time and instantaneous shutter, two finders, carries twelve quarter-plates, covered leather, £4 4s.; Radial hand-camera, by Marion, fitted Soho R.R. lens, shutter, focussing, carries twelve quarter-plates, in Marion's leather, as new, £5 16s. 6d.; "C" Daylight Kodak, rectilinear lens, time and instantaneous shutter, two finders, focussing, covered leather, carries forty-eight 5 by 4 films, as new, 75s.; "A" Daylight Kodak, as new, good lens, shutter, finder, covered leather, as new, 25s.; Houghton's Automatic hand-camera, guaranteed as new, rapid rectilinear, rotating stops. Thornton-Pickard shutter, carries 12 quarter-plates, fine camera, £4 10s.; Talmer hand-camera, carries twelve quarter-plates, fine portrait or view lens, shutter, finder, bag changing, etc., finest condition, 47s. 6d. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Dallmeyer 10 by 8 No. 3 rectilinear landscape, patent, grand definition, covers well, Waterhouse stops, 13½ in. focus, £4 17s. 6d.; whole-plate wide-angle lens, by Clement and Gilmer, Paris, rotating stops, 7½ in. focus, 30s.; Optimus portable symmetrical, size 9 by 7, rotating stops, covers well, works *f*/11, as new, 65s.; 9 by 7 Optimus rapid Euryscope lens, Waterhouse stops, movable hood, grand definition, as new, £5 5s.; whole-plate rapid rectilinear lens by Parker, Holborn, fine definition, Waterhouse stops, as new, 42s.; whole-plate portrait lens by Laverne (Clement and Gilmer), as new, Waterhouse stops, rack focussing, covers well, £3 3s.; grand article, half-plate "Black Band" rectilinear by London Stereoscopic Co., movable hood, Waterhouse stops, works *f*/8, finest condition, 45s.; Lancaster's half-plate silver ring rectigraph lens, iris stops, covers well, in leather case, 50s.; half-plate Clement and Gilmer panorthoscopic rectilinear lens quite new. Waterhouse stops, fine definition, 50s.; Swift's 6 by 5 rapid Paragon rectilinear, very fine lens, Waterhouse stops, movable hood, as new, 50s.; Swift's No. 3 portable Paragon 5 in. focus rotating stops, finest order, 35s.; Laverne's quarter-plate rectilinear hand-camera lens patent mount iris stops, as new, 25s.; Ross' No. 4 portable symmetrical, 6 in. focus, finest order, rotating stops, 63s.; Shew's No. 2 rapid wide-angle lens, rotating stops, as new, warranted, £2 7s. 6d.; Dallmeyer 5 by 4 wide-angle landscape, rotating stops, 5¼ in. focus, as new, 50s.; Ross' No. 2 concentric, 4in. focus, rotating stops, as new, 60s.; Ross No. 2 c.-d.-v. portrait lens, Waterhouse stops, rack focussing, finest order, £4 4s.; quarter-plate wide angle rectilinear, by Laverne, 4 in. focus, rotating stops, as new, 17s. 6d.; 5 by 4 Optimus rapid rectilinear, by Perken, Son, and Rayment, Waterhouse stops, 27s. 6d.; Ross's portrait lens, c.-d.-v., rack focussing, Waterhouse stops, grand definition, £3. All above lenses are warranted as described.—On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Every description of apparatus bought, sold, or taken in exchange.

Bargains in Cameras and Sets.—10 by 8 camera fitted all latest improvements, back and front extension, for wide-angle pictures, leather bellows, reversing back, rising and falling front, two double slides, grand condition, take £6 10s. lot; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; Morley's 7½ by 5 patent camera, double extension, leather bellows, rising and panel front, swing back, three double slides, Morley's 8 by 5 rapid rectilinear lens, Waterhouse stops, folding tripod and case, £6 12s. 6d.; half-plate Lancaster's special brass-bound Instantograph as new, wide-angle movement, double extension leather bellows, etc., Lancaster's lens, iris stops, special see-saw shutter, two brass-bound double slides, folding stand, and case, £4 12s. 6d.; Lancaster's half-plate Instanto camera, double extension, rising, falling, and cross fronts, movable baseboard, etc., really good lens, iris stops, double slide, folding stand and case, 50s.; rapidograph half-plate camera, by Perken, Son, and Rayment, double extension, leather bellows, reversing and swing, three double slides, fine rapid rectilinear "Leviathan" lens, iris stops, grand definition, three-fold stand and case, £6 17s. 6d.; half-plate Underwood's Instanto camera, leather bellows, square wide-angle movement, rising, falling, and cross fronts, double dark slide, quarter carrier, rapid rectilinear lens, Waterhouse stops, and folding stand, £3 17s. 6d.; half-plate "Duke" camera, double extension leather bellows, rising, falling, and panel front, back and front extension, two double slides, metal division, rapid rectilinear, Waterhouse stops, and folding stand, as new, £6 5s.; quarter-plate Lancaster Le Meritoire set, complete, camera, lens, two slides, and stand, best condition, 27s. 6d.; quarter-plate Underwood's Convention set, camera, lens, two slides, and stand, best order, 32s. 6d.; quarter-plate Le Merveilleux set, by Lancaster, complete, 15s.; quarter-plate extending camera, best order, good lens, two double book-form slides, and folding stand, 17s. 6d All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

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WANTED, an Assistant Editor for Photographic Journal; must have had experience in journalistic work and in photography.—Apply G. D., 37, Middle Lane, Hornsey.

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OUR ◆ VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

Our Views.—A Curious Statement—The Advances in Art—Oft-photographed Spots—Topographical Bits—Southampton Exhibition—Spooks—A Real Ghost Photograph—Mr. Stead and his Spook—Staining Plates with Ammonium Picrate—Previous Users—Jonas' Formula—Disadvantages of Picrate Staining—The Blackheath Exhibition—The Chicago Reading Room—The *Beacon* and Ourselves—The Amateur Photographer as a Breeder of Pothunters—Some of our Past Prize Winners—Evidence in Favour of Competitions—The Editor's Lot—The Opposite View—The Intermediate One.

Leader.—A Standard Light.

Letters to the Editor.—A Society for Kirkcaldy (Wilson)—Oil Lanterns and Screens (H. S. G.)—Amidol (Spiller)—Elliott's Exposure Table—A Dark-Room Query (J. A. F., E. L. W.)—An Anachronism (Birch)—Harringay Society (Frith)—Fillebrook Athenæum Exhibition (Spurgeon)—Mounting P.O.P. (Thornton)—Elementary Lectures (Gosling).

Apparatus.—The Aptus Balance—The Unique Lecturer's Reading Lamp—The Rapid Camera Aristogen—The Professional Retouching Knife.

Articles.—How to Print in Carbon (Hodges)—On the Comparative Advantages of the Wide-Angle and Telephotographic Lenses (Dallmeyer)—Photographing Paintings by Artificial Light (Debenham)—The Legitimate in Photography—The Position of the Sun in Calculating Exposures.

Holiday Resorts.—Southsea.

Exhibitions.—Rotherham Phot. Soc.

Societies' Notes.

Societies' Meetings.—Ashton—Birkenhead—Birmingham—Bristol—Brixton—Burnley—Cornish—Eastbourne—Goole—Hackney—Hereford—Leicester—Liverpool—North Kent—North London—Oxford—Phot. Soc. of Ireland—Rochester—Sheffield—South London—South Manchester—Walsall—West Surrey.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Lantern-Slide Competition, No. 45.—Latest day, March 11th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, March 24th, 1893.)

We are accustomed to curious statements by laymen and the lay press, but when a photographer delivers a lecture before an architectural club, we expect a little more accuracy. A Mr. J. J. Woolnough gave a lecture before such a club at Toronto, Canada, and is reported in the *Canadian Architect and Builder* to have said:—"The dry plates are coated on one side with a mixture called 'the emulsion,' and composed chiefly of gelatine and nitrate of silver. The sensitiveness of plate is due to the nitrate of silver, the gelatine being chiefly a vehicle to carry the silver salt." Perhaps they do make dry plates thus in Canada. We live and learn.

* * *

In a leaderette in the *Sussex Daily News*, occasioned by a paper read by Mr. de Paris before the Brighton and Sussex Natural History Society, stress is laid upon the advances made by our art, and the writer says:—"By the instantaneous process the poses of animals in motion, the fleeting effects on landscapes occasioned by a passing cloud, and other ephemeral results can be reproduced with an accuracy unknown to other forms of art, by its aid. So much of the beauty of nature is owing to transposition that it would be absurd to deny the process by which alone that beauty can be imitated a right to be classed among the arts."

* * *

Further on the same articles continues:—"A series of tours through Sussex would be a profitable means of employing leisure days through the coming summer. . . . Particularly would this be so if the photographers would eschew paths already sufficiently trodden, and seek out unfamiliar haunts." The latter sentence we would specially commend for careful attention. No matter how unbiassed a judge may be, there is always a feeling in his mind when seeing a print of some oft-photographed spot "Dear me! here's this old thing again," and unconsciously that print is handicapped by that feeling.

* * *

Somewhat of the same feeling too is experienced on seeing the print of a show place or neighbourhood, and unless—and, alas! how rarely that occurs—there is exceptional artistic treatment, one instinctively murmurs, "Topographical, sixpence plain, shilling coloured." Judges are but human after all, and the constantly recurring "Conway," "Miners' Bridge," "Swallow Falls," and hosts of such old friends are apt to be handicapped.

* * *

The Southampton Art Society, at their annual meeting last week, determined to hold a spring show of black and white, art needlework, and photography. The local paper adds, "The addition of photographic exhibits is a new departure, and the present year is likely to be one of considerable interest in Southampton art circles." Probably we shall hear more of this anon.

* * *

Prithee, good friends, one and all, spare us, or at least treat us gently. We had no idea so many were believers in "spooks"—we beg pardon, we mean etherialised matter or materialised ether. Believe us, no harm was intended, and we trust that we shall not, as suggested by one correspondent, be visited by vengeful "spirits." Still, if they come, we implore them to come in the daytime, or at least if at night, will they bring the lemon and sugar? there's plenty of hot water about, if we may judge from some of the letters.

* * *

Some of our correspondents may be glad to hear that we have to confess that "there is more in heaven and earth than dreamt of" in our philosophy, for, discussing the matter of spirits with a brother photographer the other day, we were shown some prints from negatives taken by him, and on plates bought by him and kept by him intact till the dark slides were filled, and yet there was a ghostly image, not due to under-exposure, but the real image of a real—well, let it stand—the real image of a real ghost. We must not say any more, as possibly the photographic world may yet hear of this matter elsewhere. At least, for our own part, we gave it up.

* * *

Mr. W. T. Stead, as is probably well known, has a "spook" of his own, and a very convenient one too, if all that is said of it is true. Not to be behindhand, we have started one, a real, genuine "spook," a black one, too, and, as heretofore, he will be handy to blame any slip on. Outside the office he is known as—the printer's devil.

* * *

At a recent meeting of the Photographic Society of Japan, Messrs. W. K. Burton and K. Arito showed the results of a series of experiments with plates stained with picrate of ammonium as a preventive of halation, with marked success, for the report says, "Both halation and solarisation were completely prevented."

* * *

The idea of staining films for this purpose is by no means new, it being a well-known fact that the use of a film stained with coralline for this purpose led to the accidental discovery by Dr. H. W. Vogel of the orthochromatising of plates, and this was in 1873 (*Photo. Mittheil.*, vol. ix., p. 236). Ammonium picrate has also been recommended by Vidal for staining plates, to obviate the necessity of using a yellow screen, and also by Jonas in his valuable process of preparing very sensitive orthochromatic collodion plates, which was given in full in our issue for July 17th, 1891, p. 47.

* * *

Dr. Jonas gives there the following formula for making the ammonium picrate solution:—

Picric acid	46 gr.
Distilled water	170 min.

Neutralise exactly with liq. ammonia (sp. gr. ·91). For the collodion process, 15 parts of above solution were used in every 100 parts of collodion. Probably a weaker solution could be used for gelatine dry plates. No information is given on this point by Messrs. Burton and Arito.

* * *

Jonas states that the picrate staining lowers the blue and violet sensitiveness considerably, but Burton and Arito state that "the sensitiveness was somewhat reduced, but not much, whilst so far as density was concerned, the difficulty had up to the present been that too great density had been got in every case. The picrate did not seem so much actually to slow the plate as to act as a retarder in development. This necessitated a developer strong in alkali, and, even with very small proportions of pyro or of eikonogen, the density came up to great."

Halation is such a bugbear that we are sure many of our readers will be glad to hear of this easily applied remedy.

* * *

The Hon. Sec., Mr. T. B. Earle, of The Cottage, Handen Road, Lee, requests us to remind intending exhibitors for the Blackheath Camera Club Exhibition, which takes place on March 3rd and 4th, that all entry forms must be sent in to him by 22nd inst.

* * *

The British section of the Chicago Exhibition is to have a free public reading-room, which will be liberally supplied with English papers. With pleasure we have promised to supply the Amateur Photographer, and our readers will therefore be able to keep *au courant* with us and our doings whilst seeing the World's Fair.

* * *

Our old friend, "Uncle Andrew," in the current number of the *Photo-Beacon*, quotes a paragraph of ours on the medal question, and on it hangs a text for a short sermon. He says that our cry for some decision as to the awarding of medals, exhibitions, and previously medalled pictures is "an apt illustration of 'Satan reproving sin,' as it [the *A. P.*] has been the leader and chief sinner in what I regard as one of the worst phases in connection with photography."

* * *

"Uncle Andrew" continues, "But bad as are the influences of medal giving at ordinary exhibitions, they are intensified tenfold by the modern method adopted by several of the photographic journals, which have instituted even regular monthly competitions in various classes of work, and converted hundreds of their readers into 'pot-hunters,' the result being an undermining of the general faith in the honesty of mankind, etc."

* * *

Our old friend is evidently suffering from indigestion of facts, caused by a want of knowledge of the true *raison d'etre* of our competitions and their effect. That we are converting hundreds of our readers into "pot-hunters" we deny. That here and there we get a "pot-hunter" we admit. But, please, dear Uncle, will you look on this picture and alter your hastily-expressed opinion?

* * *

Amongst our past prize winners are such men as Beck, Bedford, Bhedwar, Bingley, Brightman, Cembrano, Davison, Emerson, Gale, Hare, Keighley, Lange, Stieglitz, Tolley, Wade, etc. Are these men "pot-hunters"?

* * *

Then, again, we receive a letter from the winner of a Bronze medal in our Monthly Competitions, who says, "I can hardly tell you how glad I was to see I had won one of your coveted medals. I mean to try and turn out better work and get the silver." And as a matter of fact he did get it, and writes, "I told you so; I meant to have the Silver, and I've got it, and yet I'm not happy, I mean to get your *Gold*. I think your system of encouraging amateurs by awarding medals is very valuable, and personally it is to me a great incentive to drop plate spoiling and go in for picture making."

* * *

This is merely one example, Uncle Andrew. We are quite ready for you when you come on again, and we can give you a facer like this every time you come up smiling.

* * *

There is an old saying that "a policeman's lot is not a happy one;" neither is an Editor's. We receive by one post a letter which says, "I think you are making the Amateur Photographer far too elementary for us now." We go home that night, and it happens to be Monday night, with a fixed determination to make the Amateur Photographer as scientific and as dry as dust as possible, and with this idea sit down, and write a highly abstruse article on "Co-efficients of an ——," illustrated by numerous diagrams and mathematical formulæ by the score.

BY the next morning's post we get a letter, "Dear Sir,—Can you please tell me how to find the equivalent focus of my lens, and what *f*/11, etc., means? I think the AMATEUR PHOTOGRAPHER is getting rather too scientific for us amateurs now." This is awful. We instinctively drop the letter like a hot coal, and lean back wondering what on earth we are to do.

* * *

THE next letter, however, puts us right, or attempts to,—"Dear Sir,—Will you allow me to correct a statement on page . . . . Surely it is not advisable for you to try and be at once scientific and elementary; can't you take one or the other? You publish many papers which are far too deep for me and others like me, and others are merely instructions for novices, and contain information that I learnt years ago."

* * *

LUCKILY we were alone, and nobody heard the despair of the poor bewildered editor who had thus got fixed up as a sort of central target for a triangular fire. These are not letters evolved for the purpose of making copy, but actual facts. And we have not yet found out the answer to this riddle. We have asked the Sphinx what to do, and, failing that source of wisdom, we shall have recourse to the old Sibylline Leaves or Delphian Apollo. In the meanwhile our hair turns grey visibly, and we have not yet made up our minds who is right.

A STANDARD LIGHT.

AT the present time, when the question of the sensitiveness of plates is so much to the front, it may not be out of place to consider the question of a standard light.

In the first place, we must distinguish between photometric and actinometric standards. The former term should be applied to the standards which are used for measuring the optical brightness of a light, whereas the latter are used to measure the chemical action or actinism of different lights. At first sight it might seem possible by photometric examination to determine the actinometric value, but, unfortunately, whilst it may be perhaps accepted that the brighter the light visually, the stronger its actinic power, yet there is no definite ratio; and a light source very poor visually may be exceedingly rich in chemically active rays.

We need not here recapitulate the oft-told tale of the difference between visual and chemical effect in the spectrum; that it should be taken into account, however, is, we hold, of great importance when testing dry plates, because, speaking generally, it may be said that every plate is sensitive to, or has its maximum sensitiveness at one particular region of the spectrum, and this particular maximum depends upon the method of preparation of the emulsion. Further than that we may say that the spectrum sensitiveness depends upon the exposure, for with a short exposure the sensitiveness may be confined to a very small section of the spectrum.

It may be adduced as an argument against spectrum testing of plates that we do not expose them to pure spectrum rays in ordinary work, which is perfectly true; but as all the colours and lights of nature are derived from spectrum colours, it is obvious that from the relative sensitiveness to the spectrum we may deduce the sensitiveness to any coloured object.

The requirements of a normal or standard light may practically be said to be: (1) that it should be possible to obtain the light everywhere of absolutely equal intensity; (2) that the chemical intensity of the light should be constant; and (3) that it should emit all the spectrum rays which act on photographic plates, papers, etc. It is by no means easy to find a light source which shall fulfil all these requirements. Pickering compiled a table which gives us some idea of the distribution of the brightness of the different regions of the spectrum which is very instructive.

LIGHT SOURCE.	FRAUNHOFER LINES OF SPECTRUM.				TOTAL BRIGHTNESS, IN CANDLES.
	C	D	b'	F ½ G	
Standard candle	73	100	104	134	1
Gas	74	100	103	125	16
Limelight	59	100	113	285	90
Electric light	61	100	121	735	362
Magnesium	50	100	223	1,129	215
Moonlight	87	100	155	363	204
Sunlight	45	100	250	2,971	70,000

In this table the brightness at D in the yellow is assumed to be = 100. It will be seen that in the above data, which are of optical brightness, magnesium is the one which most nearly approaches sunlight.

If we consider for a moment that it is possible to sensitise plates by certain means for yellow and yellowish-green, it seems reasonable to suppose that in testing such plates by a standard light, which is richer relatively in yellow and yellowish-green rays than in blue and violet, such plates should show greater sensitiveness. And this is the point that has led us to distrust Messrs. Hurter and Driffield's statements.

Mr. Cadett, in the current issue of *Dry Plates*, says:—"I now come to the consideration of another point which, in my own case, was really the reason why I did not carefully go through Messrs. Hurter and Driffield's paper at a much earlier date than I did. I refer to the use of a candle for the determination of speeds for daylight exposures. At first sight there seems to be a grave question as to the reliability in the comparative use of a light having a relative different spectrum value to ordinary daylight. A little thought will, however, show that this point is of no consequence *provided that plates generally show the same relative sensitiveness to both candle and ordinary daylight*, as the constant (34) for calculation of the daylight number of the actinograph applies to all plates. It has been a matter of surprise to me to find that all commercial plates to date conform to this constant, and *I was still more surprised to hear from Mr. Driffield that even orthochromatic plates when used in ordinary daylight obey the same constant*, as far as he is able to judge by repeated testing. No doubt when used with a screen an orthochromatic plate would require a different figure according to the screen; however, it seems that the spectrum values of the candle do not interfere with the general testing for daylight use."

The italics in the above quotation are ours, and upon the points there enunciated we must confess we should like to hear a little more. It does not seem feasible to us to say that colour-sensitive plates obey the same constant as ordinary plates, though it may be so. And, of course, this may be met with the answer, "'Ordinary daylight!' Well, what is 'ordinary daylight?'" Would the yellowish light towards sunset be called ordinary daylight? It is daylight and is of ordinary occurrence, but if not "ordinary daylight" in the sense used by Mr. Cadett, then the system of speed marking and exposures by Hurter and Driffield's actinograph is only applicable to a few hours in the day.

We have rather wandered from our subject, "A Standard Light," but our remarks were suggested by the above quotation from Mr. Cadett's paper, and have been made, not, as may be suggested, in any captious or biassed spirit, but from a desire to settle the numerous questions which have arisen in the course of arguments with several photographers at different times. We shall hope to proceed next week to consider the various standard lights suggested, and sum up the pros and cons and make a suggestion as to the employment of a light which in the spectroscope more nearly approaches sun and day light.

Letters to the Editor.

A SOCIETY FOR KIRKCALDY.

SIR,—In connection with the Kirkcaldy Naturalists' Society, a photographic section has just been formed. The section is provided with a large and well-ventilated dark-room for the use of the members, and it will also be open to any members of other societies who may be touring in the district, which abounds with many lovely spots for the camera. The first meeting of the section was held on Tuesday evening, February 7th, in the Society's rooms, Kirk Wynd, Mr. H. P. Thomson, President, in the chair, and, judging from the number present, and from others signifying their intention to join, the section promises to be a great success.—Yours faithfully, ROBERT H. WILSON, Sec.

* * * *

OIL LANTERNS AND SCREENS.

SIR,—What kind of oil lantern can your correspondent (Mr. J. Leicester) have been using? He says "it is impossible to get a well-lit picture even six feet wide."

For five years I have given on an average twenty-five exhibitions per year, using both oil and limelight. With the oil-lantern I can always get a first-class picture of at *least* ten feet, and often over twelve feet in diameter. The sheet is made of white linen or what is used for window blinds, which, if kept clean, and when in use stretched firm and tight, cannot fail to give a good picture.

With the limelight I get a very good sixteen foot to eighteen foot picture.

A cheap calico sheet is of no use whatever. My sheet cost thirty shillings.—Faithfully yours, H. S. G.

* * * *

AMIDOL.

SIR,—Your correspondent "Isis" has an odd sort of grievance when he complains that "the moment a new developer is introduced it should find itself at the mercy of a host of experimentalists, who before long succeed in transforming it out of all knowledge, and in most cases ruining it in the estimation of those who use their perverted formulæ."

Well, what other course can be adopted than that anything new should at once be put to the test of experiment; and what hardship if more than one method of using the new comer should result from such extended trials? The "inventors and producers" are not necessarily the best judges of the mode of employing their novelties, and it may be many years before the ultimatum is reached, for even now with our old friend pyro it cannot be asserted that all photographers are working strictly according to one uniform system. But in the case of amidol it fortunately happens that the code of instructions given out by the manufacturer is sufficiently trustworthy and reliable to meet the first wants of the amateur; and now that it is launched every new improvement, as those of Messrs. Addenbroke and Dresser, who advocate the use of meta-bisulphite for paper enlargements, must, in turn, become matters of interest, although they may at the outset add to the perplexities of a tyro in the art. —I am, yours, etc., JOHN SPILLER.

* * * *

ELLIOTT'S EXPOSURE TABLE.

SIR,—In Table 2 of our exposure table a slight printer's error has occurred, and which we regret we overlooked. The first three columns headed respectively $f/6$, $f/8$, and $f/11$ should have been headed $f/8$, $f/11$, and $f/16$. Thanking you in anticipation for inserting this correction, we are, etc., ELLIOTT AND SON.

Barnet, Herts, February 10th.

* * * *

A DARK-ROOM QUERY.

SIR,—Your correspondent omits to give the dimensions of his dark-room. From his description of it, however, I have little doubt but the "moisture trouble" is the result of insufficient ventilation. I understand that the ventilation is wholly lateral, and consequently is almost solely the result of diffusion. If Mr. Few could manage to put a chimney on the top of the room the warmer saturated air would escape by convection, and would be replaced by air under ordinary conditions as to temperature and moisture. Further, if the chimney terminated inside the room in an inverted funnel placed over the gas jet, the convection current would thereby be rendered more active, and the water formed by the combustion of the gas would be carried directly outside.

Mr. Few is puzzled to know where the water comes from. Besides that produced by combustion referred to above, there are several sources—the developing and fixing trays with their large surfaces, a sink or large tray for washing negatives or prints. If the room is used for bromide work there will be several large sheets of water exposed at once; then if the room be small, the breath of the operator or operators is a not unimportant factor.—I am, etc.,

J. A. F.

SIR,—In reply to the above I would advise C. E. Few to remove the galvanised iron roof and cover same with matched boards, give the outside two or three coats of paint, and replace the galvanised iron sheets.—Yours, etc., G. L. W.

* * * *

AN ANACHRONISM.

SIR,—If Mr. Huggins will turn to the "British Journal Almanac" for this year, page 503, he will see a picture of Miss Violet Vanbrugh as "Anne Bullen" *(sic)*. Is this an anachronism? If he sees the words "from a negative" printed beneath it he will say it is, but hold it at a distance, imagine it to be a fine engraving of, say, the last century, and will it be less an anachronism?

I have seen a sepia painting which could not be distinguished from a photograph. Let us suppose it to be an historical subject.

Then take a platinotype photo of some historical painting. Which of these, too, would be the greater anachronism, and why?

Are not many of the "old masters" gross anachronisms as regards the type of face for historical subjects, and in the accessories employed?

As to putting Sir Walter Raleigh into a "stove pipe," no one would, of course, do such a thing now-a-days, though in the last century such anachronisms were common enough (not stove pipes though) both in paintings and on the stage. It seems extraordinary that bag wigs should have been tolerated in historical plays, but I have seen percussion pistols (invented *circ.* 1840) used in the duel scene in "The Rivals!" And what is one to say to lime and electric light used at the Lyceum in "Faust," "Macbeth," etc.? Are these anachronisms? Mr. Irving certainly does not tolerate anachronisms, yet these are historical subjects.—Yours, etc.,

WALTER DE H. BIRCH.

* * * *

HARRINGAY SOCIETY.

SIR,—Having heard from several sources that the Harringay Photographic Society is still unknown to a great many of the photographers residing in the north of London, I should esteem it a favour if you would allow me to make it known through your columns that this society meets the first and third Thursday in each month at the Endymion Refreshment-rooms, next Harringay Park Station (M.R.), Green Lanes, at eight o'clock. All particulars and programmes may be had of the Hon. Secretary, C. N. FRITH.

8, Cavendish Road, Harringay.

* * * *

FILLEBROOK ATHENÆUM EXHIBITION.

SIR,—Will you kindly allow me to communicate through your columns, to the numerous readers who are interested, the answer to an important question which has arisen in connection with the rules of the above exhibition?

The point was: Can one exhibitor take more than one medal? and the resolution of the committee, with which I think most will agree, is that one medal only may be awarded to an individual exhibitor, but the award may be either for a single exhibit or for a series, according to the decision of the judges.

May I take this opportunity of asking intending competitors to send in their entry forms as soon as may be convenient, and thus relieve the executive of a sudden rush of work at the last moment? —Yours, etc., JOSEPH W. SPURGEON.

Leytonstone, Feb. 13th.

* * * *

MOUNTING P.O.P.

SIR,—I noticed in your issue of January 13th last, a letter on mounting P.O.P. prints when glazed. I beg to submit a sample of my way of mounting, which is very simple, viz., presuming prints are cut to proper size when squeegeed down I run a small brush round the edge with pure gum arabic while the print is damp, and then let it dry; when print peels off, repeat process, and rub well down on to mount, and place under pressure, when it will be found properly mounted and the glaze not injured in the least.—Yours, etc.,

F. J. THORNTON.

[The print sent is all that can be desired both as to mounting and surface.—ED.]

* * * *

ELEMENTARY LECTURES.

SIR,—Can you spare me room in your valuable journal for the following announcement?

The North Middlesex Photographic Society have arranged a series of elementary lessons for beginners, as follows—

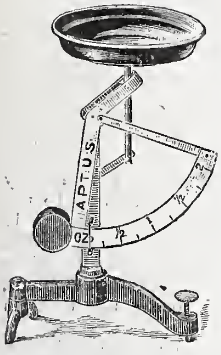
1. A talk on the management of camera, lens, stops, etc., in the field.
2. Outing, to put theories into practice.
3. Development of plates exposed at outing.
4. Toning gelatino-chloride prints.
5. Improvement of negatives by reduction, intensification, etc.

There will be no charge whatever for attending these meetings, which will be held at Jubilee House, Hornsey Road, N.

We have room for a limited number of gentlemen, not members of our society, who would like to attend, and full information as to dates, etc., can be obtained by applying to me.—I am, yours, etc.,

13, Lausanne Road, Hornsey, N.,
February 13th, 1893.
Geo. Gosling
(Hon. Sec.).

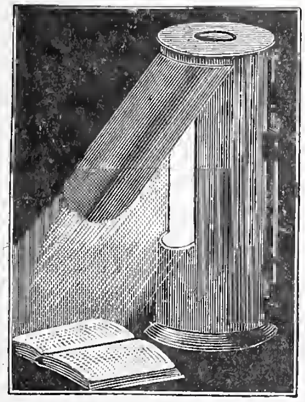
Apparatus.



THE "APTUS" CHEMICAL BALANCE.

Messrs. Sharp and Hitchmough, of 101, Dale Street, Liverpool, have just placed on the market a new form of balance which will be especially useful to photographers. It is very sensitive, and will weigh up to 2 oz., and is very reasonable in price, viz., 2s., or post free, 2s. 3d.

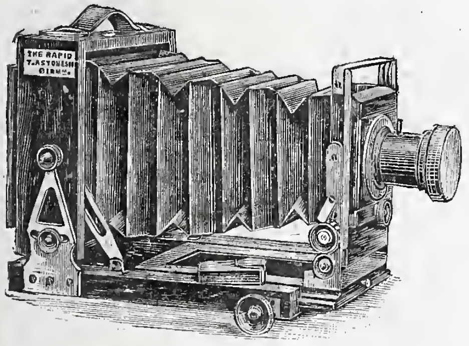
THE "UNIQUE" LECTURER'S READING LAMP.



Messrs. Butcher and Sons, of Blackheath, have still further improved this little lamp without increasing the price. As will be seen from the diagram, a reflector is provided to throw the light down on to the MSS., and a little red signal-hole is provided at the back. It is now arranged for use either with a night-light or candle, and a ruby fabric screen is provided which makes it a serviceable travelling dark-room lamp. The price is still as before, 2s.

THE "RAPID" CAMERA.

T. Aston and Son, of 95, Spencer Street, and Hockley Street, Birmingham, have placed a new camera on the market. It is provided with Kinnear bellows, rack and pinion focussing, rising front, with patent ratchet catch, double-back, with swing from the centre. The camera closes up to the small space of three inches; and one double dark slide, a stand, and R. R. lens is sent out with the same at a price of £5 5s. for half-plate.



ARISTOGEN.

Under this title Dr. E. Liesegang has placed upon the market a concentrated developer for his aristotype paper, which only requires diluting with twelve parts of water to yield good results from faintly-printed proofs.

THE "PROFESSIONAL" RETOUCHING KNIFE.

Percy Lund and Co., of Memorial Hall, Farringdon Street, E.C., and Bradford, have sent us a sample of the above very useful adjunct to the retoucher's outfit. In appearance it is exactly like the ordinary retouching pencil, but instead of the lead it contains a small knife, which in our hands has proved very efficient for picking out little spots, and if the side of the knife instead of the point be used, we have found it possible, with careful manipulation, to take off just sufficient film and deposit from over-dense spots to make them print through. It will be found very useful for dodging negatives.

Catalogues.

THE REVOLUTION IN HAWAII.

S. W. Wilson and Co., of 2, St. Swithin's Street, Aberdeen, have just issued a new set of slides called "The Paradise of the Pacific, or a Trip to Hawaii," which will be of special interest just now in the face of the constitutional troubles this place is passing through. The set contains portraits, views, groups, plants, etc.

Sharp and Hitchmough, 101 and 103, Dale Street, Liverpool.

This firm have sent us a capitally compiled and illustrated price list of over sixty pages, which contains some noticeable and serviceable lines.

Philip Harris and Co., Ltd., 144 and 146, Edmund Street, Birmingham.

Messrs. Harris and Co., the makers of the well-known Cytox hand-camera, send us their catalogue of over fifty pages, containing every requisite for the photographic worker, with illustrations. A speciality of this firm is the Cytox electric reading and dark-room lamp, which is well worth attention from those who desire to use the electric light.

Arthur Schwarz and Co., Dashwood House, 9, New Broad Street, E.C.

From this firm we have received a price list of all Dr. Andresen's chemicals for which they are agents, and most of them are packed in very convenient parcels.

My Meter.

Our photographic poet laureate sends us the following parody of a well-known poem :—

What aids my unaccustomed sight,
When I expose, to gauge aright
The *actinism* of the light?—
My meter!

What is it that can indicate,
As surely as the voice of fate,
How long to give each brand of *plate*?—
My meter!

What is it that can best express,
Eliminating doubt and guess,
The *subject's* metamorphoses?—
My meter!

What teaches me, in my peram-
Bulations with my trusty cam.,
Not to forget the *diaphragm*?—
My meter!

And when at last, life's journey done,
My photographic race is run,
What shall I thank for honours won?
My Watkins!

D. C. H.

Windsor Castle.—On the 4th inst. Mr. W. Oldham, of Eton, delivered, before the Albert Institute, a very interesting lecture on the above, illustrated with over seventy very fine lantern slides of the principal historical and artistic beauty spots of this royal home.

How to Print in Carbon.

BY JOHN A. HODGES.

CHAPTER IV.

ALTHOUGH correct exposure will yield the best pictures, a certain amount of over or under exposure can be compensated for by varying the temperature of the water in which the prints are developed. Over-exposure can be to some extent remedied by increasing the temperature to 110 deg. or 120 deg. Over-exposed tissue also takes longer to develop than tissue which has been correctly exposed. The converse treatment is indicated when the tissue is under-exposed; development proceeds very rapidly, and the image is wanting in vigour. In a such case development should not be allowed to proceed too far, and directly the picture is fairly out, development should be arrested by plunging the print into a dish of cold water. When tissue is known to be under-exposed, a cooler bath should be used for developing. From the cold water the prints are removed and transferred to a dish containing a 5 per cent. solution of ordinary alum. The object of this is to eliminate all traces of bichromate, which will be indicated when all yellowness has disappeared; the alum also hardens the image and renders it practically insoluble. A final rinse in clean cold water will complete the picture, which, when dry, will be ready for mounting.

Carbon prints cannot, like platinotypes or albumen prints, be dried between blotting paper, but should be suspended from a line stretched across a room by some of the handy little American clips obtainable from any dealer.

Before proceeding to deal with the mounting of the prints, we will direct our attention to the double transfer process. The tissue employed in no way differs from that used for the single transfer process just described, and if plain tissue be purchased it may be sensitised according to the directions already given. Nor does the method of printing the tissue in any way differ from that described: up to the moment of development the two processes are, in fact, identical. But at that stage an important modification is introduced. It has been pointed out that the single transfer process, when ordinary negatives are printed from, yields pictures which as regards left and right are reversed or inverted. In the single transfer process the exposed tissue was developed upon single transfer paper which formed its permanent support, but in the double transfer process development takes place upon a temporary support, which may be either a piece of prepared smooth opal, or patent plate, or a special paper called "Sawyer's temporary support," obtainable from the Autotype Company. If a fine glacé surface in the print is desired, either plain glass or the temporary support must be used; if a delicate matt surface is preferred, the smooth opal must be employed. Prints so produced have a delicacy and depth not always apparent in pictures produced by photographic agency.

Assuming that a matt surface is required, the smoothed opal must be of good quality and free from scratches, bubbles, or other defects, and should be a little larger in dimensions than the prints. It should be first carefully cleaned, and then rubbed over with the following waxing solution:—

Resin	4 drams.
Beeswax	2 "
Turpentine	16 oz.

Procure some clean dry flannel, drop a small quantity of the waxing solution upon the plate, and with a piece of the flannel well rub the compound over the entire surface of the glass. Having done so, rear it on end, and proceed to treat the other pieces in the same manner. Take a fresh piece of flannel, and proceed to polish the plate first waxed, removing all the surplus, but leaving as it were a fine polished film of wax. Were this operation omitted, the print, after development, would adhere to the opal. It is very important, therefore, to properly wax the plate, and not remove too much of the compound in the polishing.

The plates having been prepared, the apparatus for developing may be arranged upon the operating bench as before. The exposed tissue is immersed in a dish of clean cold water, and allowed to soak until it begins to straighten itself, when it is at once taken from the water and placed, face down, on the waxed glass, which should have been previously sprinkled with clean water; a piece of thin india-rubber cloth slightly larger than the tissue should then be superimposed, and a squeegee gently but firmly applied to ensure perfect adhesion. The glasses with the mounted tissue should then be placed in a pile with pads of blotting paper between each glass, for about half an hour previous to development. This will ensure the adhesion of the tissue to the glass during the progress of development. The actual process of development is carried out just as in the single transfer process, the directions for which should be implicitly followed. Directly the picture is sufficiently out, development is arrested by plunging the plate into cold water; it is then soaked in the alum bath for three minutes, and, after being again washed in cold water, will be ready to transfer to the final support.

The final support is paper coated with a special insoluble substratum to which the developed picture will firmly adhere. To prepare it for use it should be cut to the required size, and soaked for about half an hour in a weak solution (2 per cent.) of ordinary alum. Fill another dish half full of tepid (70 deg.) water, remove a piece of final transfer paper from the alum solution, and place it therein; take one of the pieces of opal temporary support bearing the developed image, immerse for a moment in cold water, place the piece of limp final support, face down, upon the print, taking special care to avoid the formation of air-bells, and then apply the squeegee vigorously and firmly until all water, and any possible bubbles, is entirely expelled. Place the plates so treated in a pile, with stout blotting-paper interposed as before, and allow to remain undisturbed all night; in the morning they may be reared against the wall, or placed in a draining-rack until dry, when they may be stripped from the opal temporary support, and after trimming will be ready for mounting. Some of the waxing compound may adhere to the face of the print, giving it a smeary appearance; this can be easily removed by gently rubbing its surface with a pledget of cotton wool which has been moistened with methylated alcohol. The glass will not require cleaning before being again used for development, a rub with the waxing solution, as before, being all that is necessary.

The mounting of pigment prints presents no special difficulty, and any mountant which the worker is in the habit of using may be employed. Starch, thin glue, dextrine, or an alcoholic solution of gelatine, may all be successfully employed, the only precaution necessary being to avoid allowing any of the mountant to come in contact with the face of the print, which, being of a gelatinous nature, is, in common with gelatino-chlorides and bromides, naturally susceptible of injury whilst moistened by the mounting material employed.

I have already pointed out that any kind of surface is obtainable in carbon, and the Autotype Company, who may be called the pioneers of the process, now supply drawing paper of different degrees of roughness ready prepared for the single transfer process; but as some of the readers of the AMATEUR PHOTOGRAPHER may wish to use papers of special texture, the following simple method of preparing them for the purpose is described: The paper to be employed is secured to a drawing board with drawing pins, and brushed over with a solution made as follows:—1 oz. of gelatine (soaked in water and then dissolved with gentle heat) in 1 pint of water in which 30 gr. of chrome alum have been dissolved. The solution should be applied thickly, but evenly, with a broad brush.

The carbon process has many interesting applications, to go into the details of which would occupy more space than is placed at my disposal here. It is one which is eminently adapted to the production of transparencies, both for use in the optical lantern and for decorative purposes, but as directions for working this modification of the process have recently been given in these pages, it is unnecessary to repeat them. The prints may be transferred to almost any permanent basis—glass, ivory, opal, celluloid, wood, etc.—so that its application for purely decorative purposes is almost unlimited.

It would seem that interest in pigment printing is being revived amongst amateurs, for inquiries upon matters of detail about the process are frequently made both in the photographic press and at the meetings of societies; and in the current issue of the *Photographer's Record* I noticed that Messrs. Elliott and Son, of Barnet, not only advertise the tissue in small quantities, but have commenced a series of practical articles upon the subject. Anything which tends to lead to the more general adoption of any process capable of yielding permanent results helps to remove one of the greatest stigmas yet attaching to photography. I trust that the foregoing brief outline of carbon printing may induce some workers to adopt a process which, upon that ground alone, has strong claims upon their attention.

* * *

The England Assurance Institution have sent us a pamphlet descriptive of their system of life assurance without medical examination, which has considerable advantages which are worth notice.

The World's Fair at Chicago.—For the convenience of visitors to Chicago during the forthcoming Exposition, a mammoth hotel is being erected by the World's Fair Co-operative Bureau. The hotel is in blocks, somewhat after the plan of St. Thomas's Hospital, and will contain over 6,000 rooms. These rooms will be let at a uniform rate of a dollar a day to those who pay a nominal registration fee beforehand, and thus secure the right of occupancy at any time during the Exposition. The sole representation of the World's Fair Co-operative Bureau in Great Britain has been placed in the hands of the City Press Agency, 1, King's Arms Yard and 51, Coleman Street, London, E.C.

On the Comparative Advantages of the Wide-angle and Telephotographic Lenses.

By Thomas R. Dallmeyer, F.R.A.S., Etc.

In your invitation to read a paper on some optical subject, you have been good enough to select a title for me. I shall approach the subject chiefly from the side of the "man of measurement," for adequate criticism of photographic representation by optical means requires the combination of an exhaustive study of the physiology of "vision," and the recommendations of a mature student in pictorial art.

As I understand, the two main branches of photography are mathematical exactness on the one hand, and on the other such artistic skill applied to the representation of the subject as the instruments and methods we have at our disposal will allow. The first a scientific record, and the second an attempt to make such objects and scenes in nature that we wish to reproduce, "*look right*," to use an artist's phrase.

Carried to extremes, neither photographs taken by wide-angle lenses nor by telephotographic lenses depict actually what is *seen*. The wide-angle lens forces the perspective to such an extent that a "den" may be made to look palatial in its proportions, and telephotographic images may be made, large and clearly defined, of objects situated at such distances that the details shown in them would be quite invisible to the naked eye.

On the subject of the first branch, viz., scientific photography, provided both types of lens are non-distorting, the drawing given by them is in exact accordance to the laws of monocular perspective, and being due solely to the fixed point of sight for the time being. The telephotographic lens has a very pronounced advantage in being able to record that which could not be seen without recourse to the telescopic aid, and the wide-angle lens has its own scientific value in that it can record in one view a greater amount of subject, so much so that from one standpoint the whole horizon may be recorded in three views, in other words, taking in as much as 120 deg. in each operation.

When we come to the consideration of instrumental aids to pictorial photography, or our endeavour to make a picture *look right*, our object lies in the direction of seeing how nearly we can approach to a parallelism to visual impressions. I have thought it might be of interest to you if we were to go through such laws in connection with the subject of "sight" as might assist us in an analysis of the best instrumental means to adopt in order to keep our representations as much in touch with these laws as possible, for the subject before us is really one involving in a great measure the science of perspective.

Knowing that the images on the retina of the eye are inverted, it is interesting to ask first how it is that we have erect vision. The question would appear to have puzzled metaphysicians; the scientific answer as explained by Le Conte, Helmholtz, and others (Le Conte is most familiar to me, and I have frequently drawn from him), is found in what is known as the "law of visible direction," and is stated thus:—"When the rays from any radiant strike the retina, the impression is referred back along the ray line (central ray of the pencil) into space, and therefore to its proper place." Points in the horizon are referred back in a straight line to the horizon, radiants above the horizon, impress the lower half of the retina and are referred upward again, and points below the horizon, on the ground impress the upper half of the retina, and are therefore referred downward. Thus every impression on the retina reaching it by a ray line through the nodal point is referred back along the same ray line to its true place in space. So that we may say that space in front of us is under all circumstances the outward projection of retinal states. If we compare the properties of other senses we shall find a complete analogy; if we receive a blow in the front part of the body and were not even to perceive the impact of the blow, our senses would enable us to infer very distinctly the direction from which the impact came. It thus appears difficult to comprehend that the retinal images should be other than inverted, as also that their projection could give us other than erect images. In the photographic camera we have thus far a very close analogy; it is complete as regards the inverted image, and the possible transmission back again into space by "the law of direction," as also by the "law of conjugate foci," by which points in the image and object are always interchangable. In the ordinary camera we can of course only compare its visual rendering with that of monocular perspective. Stereoscopic views seen through the stereoscope complete an *illusion* that is dependent on the fulfilment of another law, known as the "law of corresponding points." From this law proceed all the phenomena of *binocular* vision, with which, however, we are not concerned this evening. From the "law of direction" proceed all the phenomena of *monocular* vision, and we will proceed to examine the different forms of perspective included in monocular vision that enable us to judge of the relative sizes, distances, etc., of objects in the field of view.

There are three, viz., Aerial, Mathematical, and Monocular or Focal Perspective. The fourth and only other form, binocular perspective, is not capable of representation on a plane surface either by the painter-artist or photographer. Before dismissing this form of perspective, however, it may be worth while noticing its bearing on the "focus" question. By binocular vision we gather up all the distinct impressions in what is called the "deep" field by running the point of optic convergence back and forth, and thus gather up all the distinct impressions into one mental image. From the fact that we can utilise this power in the same manner, with either monocular or binocular vision, in sweeping the point of sight laterally over a "wide" field, and collect a distinct impression of the scene, some writers on photography have contended for universal sharpness, or, at any rate, uniform treatment in respect of the quality of definition throughout photographic representations. Other writers, following on the lines first laid down by Dr. Emerson, have maintained that that portion of the photographic picture which in nature was of chief interest, and when looked at exercised a particular optical convergence of the eyes, should be emphasised by better definition than the remaining portion of the picture. As a matter of fact, outside the small area of distinct binocular vision, all objects in the "deep" field are duplicated either homonously or heteronomously, and are therefore indistinct, but cannot be exactly represented on a plane surface. It seems to me that Dr. Emerson's plan contributes in no small degree to a more complete illusion optically.

To return to the first three forms of perspective:—

(1) *Aerial Perspective.*—"The atmosphere is neither perfectly transparent nor perfectly colourless. More and more distant objects being seen through greater and greater depths of this medium, become, therefore, dimmer and dimmer and bluer and bluer. We judge of distance in this way; and if the air be more than usually clear or more than usually obscure, we may misjudge" (Le Conte). Most of us have probably observed for ourselves that in foggy and hazy weather objects look larger, and we are very apt to overestimate distance. A train or vehicle coming towards one in a fog is very likely to be almost upon us before we are aware of its proximity, due to this illusion. On the other hand, the undoubted testimony of all mountain climbers is, that they misjudge distance in the opposite direction in very clear atmosphere, as, for instance, a mountain top that may appear to be only, say, two or three miles off, generally turns out to be ten or twelve. Aerial perspective is of little importance when employing wide-angle lenses of short foci, as experience has taught photographers the insignificant rendering they give to distance, and, in fact, such lenses are best dispensed with except in confined situations, when aerial perspective is not appreciable. In telephotography, on the other hand, it is of great importance, not only in the judgment of distance, but also for the quality of definition attainable.

No matter what lens be employed to attain good definition of distance, the clearer the air the better the result, but, as before stated, in telephotography one can record on the photographic plate —no matter what the conditions of atmosphere may be—considerably more than the unaided eye can perceive. Furthermore it is quite beyond dispute that small images produced by ordinary aplanatic lenses on the sensitive film, and subsequently enlarged to dimensions equal to those produced by direct photography, will bear no comparison whatever as regards definition. The comparative proofs I hand you were taken by Col. Colville on Wimbledon Common in hazy weather. He was working in conjunction with Capt. Simpson, of the Intelligence Department of the War Office, and the results will speak for themselves. You will note that the enlargement from the ordinary sharp-looking negative has not a vestige of definition at all. I am indebted to Capt. Simpson for the loan of the negatives from which Mr. Bridge has prepared the comparative lantern slides I show you. They exhibit the manner in which telephotography can analyse an ordinary view. If a telephotographic lens be used at a very short distance from the photographic plate producing an image of the same size as that of an ordinary lens of considerable length of focus, the definition is practically identical. It should favour the long-focus lens from the fact that this is easier to construct on optical grounds, but with a finely finished and corrected positive element for the telephotographic lens, I have failed to find a difference as against ordinary lenses, with equal intensities, up to 48 in. focus. An ordinary lens of *twenty-five feet* focus would be required to attain the dimensions of Boissona's Mont Blanc, exhibited at Pall Mall. I cannot say whether an ordinary lens of such a focus would have given better definition. The experiment is hardly likely to be tried.

(*To be continued.*)

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* Read before the South London Photographic Society, Feb. 6th, 1893.

Photographing Paintings by Artificial Light.*

By W. E. Debenham.

In photographing paintings by artificial as by any other light, some of the things most important to be observed are the avoidance of reflections which would dim the shadows, and, so far as possible, to avoid bringing into prominence the irregularities of surface of the picture. The general principles of lighting the subject to be copied and particularly that of the angle at which light should fall upon the picture, in order to escape interferences from both the causes mentioned, have been dealt with in a paper ("Avoiding Reflections and Granularity in Copying"†) read before this Society in 1884, and published in the journals of December 19th in that year. There are some points, however, in connection with artificial lighting that should be particularly noticed.

When photographing a picture of moderate size by daylight in a studio of fair dimensions, the difference of angle at which the various portions of the picture receive the light falling upon them need not be great. With artificial illumination it will often be thought desirable to economise the light by bringing it near the picture, and then the various parts will receive the light at very different angles; so much so that it may be difficult or impossible to so arrange it that some part shall not suffer from either reflections or a lighting up of the prominences caused by irregularities of surface. With oil paintings particularly, there is a great liability to the reflection from the side of each irregular elevation of surface that is inclined towards the source of light, and which has been mentioned in the former paper as the blankety texture sometimes seen near the top of a copy, or along the edge which is nearest the light. It was pointed out that reflection occurs when the angle of incidence of light falling on any part of a picture having a glossy surface, is such that the returning angle will fall upon the lens. It was shown also that the angle must not be taken merely from the general surface of the picture, but from the inclined surfaces of the irregularities existing upon it, and that this consideration involves having the source of light at a greater angle from the axis of the lens than would otherwise be necessary.

When working with the light near any but a very small picture, two kinds of difficulty arise. In the first place, as the light must not be close to the lens, on account of the reflections that would be introduced, but must come from a considerable angular distance, it is obvious that the part of the picture nearest the light will receive more illumination than the opposite side. This difficulty may be minimised where the direction of light will not interfere with the painter's intention, by a second light from the opposite side. Another difficulty, however, is that with a near source of light the angle at which it falls is very different at different parts of the picture, so that, if we get a sufficient angle at the side nearest the light, the illumination will fall very obliquely indeed upon the opposite side. All this points to the desirability of having the source of light as far removed from the picture as is reasonably practicable. The two considerations which will permit of a nearer approach of the light are, first, a small size of picture to be copied, and, secondly, though not to so great an extent, a greater distance of the lens from the subject. This end is secured by using a lens of long focus compared with the size of plate, and this is also desirable for another reason—*i.e.*, that the image will be in a flatter field, and so much stopping down will not be necessary. The main objection to a distant source of artificial light is the length of exposure that would, with some illuminants and in some subjects, be necessary, and hence, no doubt, compromise will frequently be tolerated.

The necessity for placing the light near the picture, and the difficulty arising therefrom, only come into play (except for limitation of space where no large room is available) when the photographic activity of the light is low. Where the electric arc is obtainable the difficulty ceases, and on various accounts with such a light available I should prefer to instal a copying establishment with that, rather than with daylight, especially in London, where we are so much dependent upon weather and season. Magnesium light is also good if a chimney can be fitted to carry off the fumes. With any artificial light (except the magnesium flash) it is easy to intercept the rays that should be cut off by the yellow screen in orthochromatic work, a plan which obviates any optical interference with the working of the lens, and not necessitate specially optically ground glass of the colour required.

A source of light everywhere obtainable, and one which will suit most amateurs, and be quite sufficient for copies for small paintings, especially water colours and such oil paintings as have not much yellowed by time, is that given by paraffin or gas light. Light of this character may be used without a coloured screen, and gives about the same result as the use of a moderate yellow screen in the lens with daylight illumination.

I have here a few photographs illustrating the copying of paintings by a paraffin illumination as compared with daylight. The light used was the lamp from an ordinary three-wick lantern of the sciopticon kind. The condenser was removed on account of the image of the flame which it gives. The distance from the flame to the picture was about about forty inches. The lamp was first placed nearly in the line of the camera, and gradually removed to one side until the reflection first visible on the side nearest the lamp had disappeared. The photographs A to G, representing a female head and a quantity of flowers, are copied from a print in colours, fairly representing a water-colour drawing in photographic power, whilst those marked M and onwards are from an oil painting about twenty years old, and pretty well mellowed in tone.

The plates used were of an ordinary commercial make, and for the orthochromatic series Ilford isochromatics of the instantaneous brand. The lens used was one of Suter's extra rapid aplanatics, full aperture, equal to No. 2 on the universal system for exposures.

The exposures given were, for the female head and flower subject, three seconds by daylight for both kinds of plates, sixty seconds for ordinary plate and yellow screen, and twelve seconds for the orthochromatic plate and yellow screen. For paraffin illumination the exposures were: ordinary plate, four minutes; ditto with yellow screen one hour; for the orthochromatic plates, thirty seconds sufficed without the screen, and four minutes with it.

For more ready comparison of the results, I have put them into a tabular form:—

EXPOSURES.

		Representation of Water-colour Drawing.	Oil Painting, somewhat Mellowed.
Daylight ...	Ortho. plate	3 seconds ...	20 seconds
	Ordinary plate	3 „ ...	20 „
	Ortho. plate with yellow screen	12 „ ...	80 „
	Ordinary plate with yellow screen	1 minute ...	6 minutes
Lamp light	Ortho. plate	30 seconds ...	30 „
	Ordinary plate	4 minutes ...	4 hours.
	Ortho. plate with yellow screen	2 „ ...	30 minutes.
	Ordinary plate with yellow screen	1 hour. ...	

The same screen was used for day and lamp light, but in the latter case it was placed in front of the lamp; and with daylight, in front of the lens. The use of colour-sensitive plates is very strongly indicated for lamplight exposure, on account of their much greater rapidity in that case, as well as for truer rendering of the blues and yellows.

An advantage of lamp light (even with an ordinary plate) over daylight, unless a deeply tinted screen is used, is seen in the clearness and brightness of the copies of the oil painting. In the daylight reproductions (without screen) the whole surface seems to be covered by a mistiness, which is almost absent in the lamp-light copies. The explanation is that the colours of the painting have been so yellowed by time that their photographic effect is very much less than their effect on the eye. The reflections from the surface of the picture are not affected by this yellowness, and, being disproportionately strong, disguise in the photograph the work of the painter. It is on this account that it has been justly observed that the orthochromatic methods (by which expression coloured light and coloured screens are included as well as specially sensitised plates), the cracks and surface disfigurements of old pictures, so very evident in reproductions by other means, are now no longer so obtrusive.

The figures given in the table must be taken as representing the exposures actually given, which were only approximately correct. The ordinary plates exposed to lamplight would, in several cases, have been the better for even a more lengthy exposure than was given.

When a "lantern" lamp is not at hand, ordinary paraffin lamps may be used. Two of the larger kind of tin-back lamps, placed one a little higher and behind the other, may be used on one side (generally the left), and one on the other side. With a smooth surfaced water-colour or fresh painting, very fair results may be obtained in this way.

I have not thought it desirable to go into the question of many sources of illumination. The general principle is the same, but, with such lights as magnesium or the electric arc, yellow screens will have to be used as with daylight; but conveniently between the illuminant and the picture, instead of in the lens. Reflectors or weaker lights may also be used on one side, or below the picture, if without them the grain or irregularities show otherwise than the artist intended.

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* Read before the London and Provincial Photographic Association.

† The *British Journal of Photography*, vol. xxxi., p. 808; *Photographic News*, vol. xxviii. p. 804.

There are, I believe, many, especially amateurs, who have paintings of which they would like to have photographs, but who cannot spare day-time for the work. For such subjects as have been indicated I hope some will find pleasure and success in working with artificial light.

One point I omitted to mention until reminded by a question. The lamplight copies of the oil-painting, on plates of both kinds, came out of full intensity, and in fact, if anything, required reducing, whilst the daylight copies of the same subject without screen required a considerable amount of intensification.

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The Legitimate in Photography.

By A. Horsley Hinton.

Perhaps upon no subject connected with artistic photography is there such diversity of opinion as the question of what is and what is not permissible in the way of "touching up" the negative or print by way of perfecting the pictorial result. Everywhere amongst those who practise, or those who critically regard photography from its purely artistic standpoint, there is observable an absence of unanimity, which is as difficult to contend with as it is unreasonable and undesirable. Particularly with respect to competitions, be they of the character of exhibitions or not, there is great need of a better understanding on this subject, and until such exists disappointments and misunderstandings must arise which otherwise should not exist.

With regard to competitive exhibitions, it was at one time an almost invariable condition, clearly stated on the regulations, that the photograph should be untouched; then a movement forbidding the particular kind of hand-work known as "retouching" (meaning thereby work on the *negative*), became more general, and the crusade against the "retoucher's art" was loudly applauded as a measure calculated to purge photography of one of its evils.

Latterly, however, exhibition rules have been strangely silent upon this particular subject, and the competitor is left to use his own judgment as to whether he may or may not apply pencil or brush to either negative or print, and to guess how far such manipulations may disqualify his work in the eyes of the jurors; and the question as to whether this or that print has been "worked up" will not infrequently form a matter for lively discussion amongst the critics and moot point between the judges, one refusing the recognition of pictorial merit to a print which is not pure photography, whilst another, having regard only to the total artistic result and championing absolute freedom in producing a picture, is equally loud in his arguments and immovable in his opinion.

Now in this we have a condition of affairs which must be recognised at once as exceedingly undesirable, and I hold that it behoves everyone earnestly interested in the advancement of photography as a pictorial art to as far as possible reduce it to a clear understanding, and to at least think out for himself, and, not rashly but after due deliberation, to satisfy himself as to how far, *theoretically*, the practice referred to may be admitted as legitimate in the production of a picture, which shall bear the title of a photograph or be admitted amongst and classified along with those productions which are understood to be the work of photographic processes.

And inseparable from this consideration will be the question of printing from two or more negatives in such a way as to produce what is known as a "combination print."

I have asked my readers to judge of the matter *theoretically*, because the ethics or legitimacy of the thing is to be judged by not as to how far it *can* be done, but rather as to whether it *may* be done if our individual ability enable us.

If, for argument sake, we admit that the addition of hand work to the print is unallowable, it follows that its execution must be sufficiently clumsy to be detected by the critic before its author can be challenged, when if the negative be called for that which was produced directly from the plate, and what was supplemented, might be distinguished; but if such a demand were likely to be made, I would suggest that having produced a satisfactory picture the photographer should destroy the plate forthwith, and so evade the challenge. Not honest, says one. Well, that, remains to be decided; and if it be considered not straightforward, I will say that if judge or critic overstep his proper jurisdiction, self-defence may justify one's destroying what it would not be policy to withhold. But say that the negative be forthcoming, shall the fact of a trifling deepening of tone in one part of the print, by means of a brush charged with some water colour, be more condemnable than the deepening of another by means of what is called "sunning," or the longer exposure to light, the remainder of the print being covered the while? In the one we employ a wash of pigment, carefully selected so as to be harmonious in tone and colour; in the other we wilfully bring about, by means of sunlight, the greater conversion of the silver-salts—say is Indian ink to be banned and silver accepted? The one is no more the legitimate printing from one negative plate than the other.

But suppose it was found that the negative itself had been worked upon. If it be wrong to increase the density of this or that object or detail, then it is equally wrong to paint out the sky which it is desired to print quite white, but if the use of pencil-point or black varnish, or other material applied by hand is excluded, are we also to exclude the employment of matt varnish? If this too is disallowed, what about local reduction or intensification in which the silver deposit is deliberately and arbitrarily increased or reduced, not by the application of paint, but a chemical solution, in either case a brush probably being used? Who shall decide what solution our brush may apply, and what it may not? And further, if local intensification or reduction by means of brush or sponge or what not, be objected to, how is it possible to logically admit intensification at all, or local development, or tilting the dish so as to keep the developer more upon one part of the plate than another? In each case we are intelligently interfering with the pure photographic procedure, we are violating the process, the manifestation of which untouched and untampered with, some of our photographic friends so obstinately demand.

Half converted we find some who say they would allow a certain amount of retouching on the negative so as to efface defects, or in portraits to remove "freckles." This will not place the matter on any better footing, for I should probably style defects and seek to remove what another would require me to leave alone—and may not my landscape plead guilty to "freckles" and "moles," as well as my lady's face? only it will probably require greater discernment to discover where the photographic plate has libelled the beauty of the landscape than in the case of a woman's complexion.

But, perhaps, longest to resist all persuasion are those who raise no questions as to the negative, but staunchly uphold the untouched print, and will have no good word spoken for the photographic picture in which they think they can detect the slightest indication of its having been touched with pencil or brush or any other tool.

(To be continued.)

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We have received from Messrs. Arthur Schwarz and Co. samples of diamidophenol, which we shall hope to report on next week.

York.—On 1st inst. the slides forming the Hull Society's loan collection were exhibited to an appreciative company, the excellence of the slides testifying to the ability of the Hull members. Mr. R. Redpath was elected on the Council in succession to Mr. Ogden, who has left York. Mr. T. Hunter was elected a member.

The A B C of the Lantern.

[We regret that in consequence of several blocks not coming to hand in time, the instalment for this issue must be held over.]

Holiday Resorts.

SOUTHSEA.

By D. E. Goddard.

Of all seaside photographic centres, give me Southsea. It is within a short distance of London—the fare cheap, lodgings and provisions moderate, plenty of good music, convenient tram-cars, shops attractive, amusements varied. I shall never forget the first hour I spent in this place. I was strolling down a street leading to the sea; suddenly there came a terrific crash and roar, then a peculiar hurtling noise, between a scream and a groan, followed after a second or two with a distant boom. When I came in sight of Southsea Castle a tongue of flame issued from its green embrasures, a dense cloud of white smoke was driven over the sea; as it rose and spread out, it presented a very effective study.

There is always plenty to see in Southsea and neighbourhood; no one can be dull there, even out of the season. The magnificent parade from the old pier to Eastney Barracks will present numberless bits for the hand-camera, also for tripod work. Firing big guns from the Castle, or the "Lumps"; blue jackets handling and firing boat guns, mounted on dwarf carriages; the various monuments that stretch across the parade from Southsea Pier to the Castle; the blind musician on his camp-stool; the old beggar woman with white cap frills, her knitting and her dog; the goat chaises, the donkeys, the ponies—all occasionally group themselves into very inviting clusters. The little boys, unwashed and stockingless urchins, sitting astride of the Russian or Burmese guns give a picture of "Peace and War" not to be despised. Southsea Common, a large triangular stretch of green, has always something interesting from a camera point of view—from a few squads of signallers, whose rapid motions with flags almost make one giddy, to the grand review of 10,000 troops of all arms, but always including a battalion of man of war's men.

Southsea pier is a grand centre, not only on account of the great variety of excursions to be taken during the season, but also as a comfortable place on which to set up the tripod. One is certain of something. A new ironclad going out to try her engines or guns, an Indian troopship, a cruiser or two; gun-boats going out to practice or returning, torpedo-boats rushing past, coasters, yachts, steamers of all kinds can be transferred to the film. There is one ugly thing that lies off the pier which might be dispensed with—a huge dredger, which it is sometimes difficult to keep out of the field of view.

A trip up the harbour in a steam launch is not to be despised, and only 6d. there and back again. The *St. Vincent*, the old *Victory*, the flagship *Nelson*, looking very different to that noble old three-decker the *Duke of Wellington*, whose place she has taken; then the Royal yachts, Indian troopships, no end of hulks, cruisers out of commission, a regular nest of gunboats, torpedo boats, and any accidental arriving or departing craft. A very good plan is to cross over to Gosport; the landing-stage will present a very animated appearance. If the street to the left be followed as far as the coastguard station, and permission asked to plant the tripod on the jetty, the *St. Vincent* will be larger in the middle distance, and boats, launches or other small fry will be sure to give a good foreground, if one waits patiently.

If the road to the right of the landing place be followed, an open bit of beach is soon reached, from which the *Victory* will give a fine picture, especially if she is lying half across the stream with her stern facing the lens. A little further on is a large timber float commanding a good view of Nelson's old flagship. If the camera is carefully focussed, and patience exercised, the mass of timber is certain to be broken up by children playing on it, stepping from one log to another, giving a very natural foreground. The trip round the Island in the *Heather Bell* will give a good return at a very small outlay: especially if the skipper takes her by the east coast of the Wight, returning through the Solent. No Man's Fort, one of the four non-plated circular forts that defend Spithead, will be passed within easy range. Ventnor can be snapped, but it is not effective—the distance is too great. St. Catherine's Point and Lighthouse is worth a film or two. The great prize will be found in a series of views of The Needles, with the lighthouse; with a Frena or Kodak at least twelve films might be taken. The snap taken just before one gets to the lighthouse, opposite to it, and just past it will be sufficiently effective to pay for the whole trip.

Hurst Castle, unless the foreground is filled by an Atlantic liner a coaster under sail, or a smart yacht, is almost too far off. Between Hurst and Southsea pier the hand-camera man must be prepared for such good subjects as are bound to come within effective range.

Another good trip is to Southampton and back, breaking the journey at Cowes and Ryde. From Ryde Pier the grouping of vessels is often exquisite. Cowes abounds in marine studies. Nor should the River Medina be neglected; it will well repay careful study. The Southampton Water is full of pictures, from the smallest steam launch to the huge North German liner, from the trim yacht to the collier brig. Nor should the town of Southampton be neglected.

I have no time or space for anything more. Go to Southsea, and I am sure you will not regret it.

National Photographic Exhibition, Crystal Palace.

The Directors announce that the National Photographic Exhibition will be held in the Nave, commencing Monday, April 10th, and closing Saturday, April 29th.

Alcoves and screens will be placed in the nave as usual, thus ensuring an equally prominent position for each exhibitor. A gold medal will be awarded for the best alcove, and a silver medal for the best complete screen.

All classes for photographs will be open to professional and non-professional photographers. A special class will be devoted to the work of lady photographers. A silver medal will be awarded to the best exhibit in this class.

The National Challenge Cup for the best collective exhibit by a recognised photographic society will be offered for competition; and in addition diplomas will be awarded by the judges, if in their opinion any society or societies show work of sufficient merit. (See Special Regulations.)

It has been arranged to have a section entirely devoted to photographs having received first and second awards at any recognised photographic exhibition. Carriage will be paid both ways on all exhibits in this section.

The Opera Theatre will be set apart each evening for the exhibition of lantern slides, competing and on loan; these will be projected on the large screen.

The South Nave will be reserved for photographic apparatus materials, demonstrations in practical photography, photo-mechanical processes, etc.

Classification.—Open to professional and non-professional photographers.

Photographs.—Class 1, Landscape or seascape, with or without figures; Class 2, Portraiture; Class 3, Figure studies; Class 4, Instantaneous, including animals, marine photography, and hand-camera work; Class 5, Architecture, interior and exterior; Class 6, Scientific.

In each of the classes, silver and bronze medals and certificates will be awarded at the discretion of the judges.

Alcoves and Screens.—A gold, silver, and bronze medal will be given for the best alcoves or screens.

Collective Exhibit by Photographic Societies.—The National Challenge Cup will be offered for competition for the best exhibit sent in by any photographic society. (See Special Regulations.)

In addition to the challenge cup, diplomas will be placed at the disposal of the judges, to be awarded to all societies that shall send in work of sufficient merit.

Loan Exhibition.—Open to professional and non-professional photographers.

This section will be confined to photographs which have received first and second awards at any photographic exhibition, irrespective of year.

The Executive will pay carriage both ways on all photographs loaned for exhibition.

Lantern Slides.—Class 1, Landscape and seascape, with or without figures; Class 2, Instantaneous photography, including animals, marine photography, and hand-camera work; Class 3, Architecture, interior and exterior; Class 4, Scientific.

In each of these classes, silver and bronze medals and certificates will be awarded at the discretion of the judges. Professional lantern slide makers are to enter sets of forty-eight or more; non-professional, sets of six or more.

Demonstrations.—Practical demonstrations of the various processes of photography will be arranged for. No charge will be made, and a properly appointed dark-room and laboratory will be fitted up for the use of demonstrators. Further particulars may be obtained of the executive. Early application should be made.

THE POSITION OF THE SUN IN CALCULATING EXPOSURES.

In the current issue of the *Photographer's Record*, Messrs. Elliott and Son's monthly, the following notes on the above subject are well worth consideration :—

"In addition to the effect produced by the presence or absence of clouds, there is another point which, we think, has escaped the observation of the makers of actinometers, etc., and that is the *direction* of the light. The various altitudes of the sun have been taken into consideration in computing exposures, but this does not seem to have been noticed, and that this has an important bearing on the subject we will endeavour to show. When the sun is right at the back of the camera there is a minimum of shadow, consequently an exceedingly short exposure is all that is necessary ; but as the angle formed by the direction (not altitude) of the sun, and the line of sight increases, so must the exposure increase in proportion, particularly when the sky is cloudless, for reasons before stated. Thus, in photographing foliage or architectural subjects, if the line of sight and the direction of sun formed an angle of 30 deg., there would not be so much shadow to expose for as if the direction of the sun's light formed an angle of 45 deg. ; in fact, many subjects with the light at this angle would be half in shadow, and if the angle were increased to 60 deg., about two-thirds would be in shadow. until at 90 deg. the whole subject would be in shadow. It may, therefore, safely be estimated that when the sun is exactly behind the camera, the exposure would only be one-half of that required when the sun was at an angle of 45 deg., and when nearly all the subject was in shadow, then twice as much exposure as that required for 45 deg. may be given."

Exhibitions.

Society.	Entries close.	Opens	Closes.	Address of Secretary.
Torquay Photo. Soc.... ...	Feb. 3	Feb. 14	Feb. 18	H. C. Howell, Nutley, Torquay.
Woolwich Polytechnic Phot. Soc.	—	Feb. 16	Feb. 18	W. Dawes, 145, Chesnut Rd., Plumstead.
Holborn	—	Feb. 18	Feb. 20	F. J. Cobb, 3, Albion Grove, Barnsbury, N.
Manchester Amateur Photo. Society	—	Feb. 21	Feb. 25	Randolph Gilmore, 1B, Cooper St., Manchester.
Blackheath Camera Club ...	Slides, Feb. 28 ; Prints, Mar. 1	Mar. 3	Mar. 4	C. W. Piper, 46, Shooter's Hill Road (slides) ; Thos. B. Earle, The Art Club, Bennett Park, Blackheath (prints).
Fillebrook Atheneum ...	Feb. 20	Mar. 1	Mar 2	J. W. Spurgeon, 1, Drayton Villas, Leytonstone.
National Photographic Exhibition, Crystal Palace ...	—	April 10	April 29	Mr. Chas. W. Hastings. Mr. S. G. B Wollaston.
Philadelphia (U.S.A.) Phot. Society	Mar 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.
National Sportsmans' Exhibition (Photo. Apparatus Section).	—	April 24	May 6	Royal Aquarium, Westminster.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B.

ROTHERHAM PHOTOGRAPHIC SOCIETY.

On the 7th and 8th inst. the Rotherham Photographic Society held its fourth annual exhibition in the St. George's Hall, Rotherham. Very gratifying success rewarded the efforts of the promoters, and it is expected that—for the first time—the statement of accounts will show a slight balance on the right side. The display of photographs was really praiseworthy, and there was undoubted evidence of progress on the part of the members, some eighteen or nineteen of whom were represented by work. There was an element of completeness noticeable about the event which was adjudged to be exceedingly attractive. New features were the preparation and publication of a catalogue, and the systematic arrangement of unmounted prints on cloth-covered boards. The space available for the display was fully monopolised, and had the room been of greater dimensions could have been made use of.

The President (Dr. Baldwin) expressed the hope that the number of members of the society would be increased through the influence of the exhibition. He wished it to be known that the exhibitions had been promoted essentially for the encouragement of the photographic art in Rotherham. He need not enter into the pleasure to be derived from producing photographs, but he was sure when an amateur reached the stage of taking a picture the interest far surpassed the disappointments that had had to be endured in connection with earlier efforts. There was present that day a lady who had come forward to help the society. Lady Albreda Fitzwilliam herself was no mean amateur photographer.

The exhibition itself was exceedingly meritorious, both artistically and technically. Lady Albreda had on view four framed photographs, the subjects being—"Reredos, Wentworth Church ;" "Midnight sun, Norway ;" "Portrait of Mrs. A. Williams Wynn ;" "Bicton, Devonshire ;" and "Ovoca River, county Wicklow—Frozen Fountain, Bicton Gardens." The Hon. Mabel Fitzwilliam also had sent three pictures of Cannes and San Remo views. Other contributors were Miss Crossley, of Maltby, whose cathedral studies wera exceedingly effective, and the Rev, John Whitehead, Congo missionary, and formerly of Rotherham. Nearly a score members of the society had sent in exhibits. Conspicuous among those of Dr. Baldwin's were Galilee Chapel, Durham Cathedral, and a "bit" at Aldwarke on the Don. Rising members were Mr. J. W. Baker, Mr. J. Caseldine, Mr. J. Clarke, Mr. J. W. Clements, and Mr. A. Feirns. In Mr. W. Firth's series there were three pleasing whole-plate snow scenes. Mr. W. H. Haywood seems to be partial to North Wales views. A large collection of photographs belonged to Mr. H. C. Hemmingway, Hon. Sec., who was the leading prize-taker in the society's recent competition. The chief characteristic of Mr. E. I. Hubbard's contribution, which was a somewhat extensive one, were highly successful "bits" at Whitby, taken with the hand-camera. Mr. J. Leadbeater seemed to strike out an entirely new departure He was represented by a very large but crowded collection of small pictures of high technical merit of Ingleton, Bolton Woods, Wingfield Manor, Haddon Hall, Conisbro', Bettws-y-coed, Maltby, etc. Conspicuous in his lot were several enlargements of hoar frost, which must possess a good deal of scientific value. They were from negatives of frost on the window of his studio about Christmas last. Besides these latter was a photograph of ice crystals, sent by Messrs. J. Martin and Co., of London. Mr. W. Mason had an effective lot, and Mr. G. T. M. Rackstraw showed principally hand-camera views. Mr. W. H. Shephard showed several good "bits," which met with a good deal of commendation. Mr. A. T. Cocking had sent six blown-out shots representing the ignition of explosives in a mine. Scientifically, they were of much value, and must have been taken under very difficult circumstances. Mr. Cocking also had a number of well-selected small pictures. Mr. J. Sykes exhibited for the first time. The whole of Mr. J. W. Whittington's work, with the exception of six hand-camera shots, appeared to be the result of two of the society's excursions of the past year, viz., to Haddon Hall and Wingfield Manor.

Respecting the processes represented in the exhibition, it was noticeable that the old style of photograph on albumenised silver paper had departed. It has given place to the gelatine emulsion papers, which, although somewhat more difficult to work, appear to give richer results. There were numerous bromide of silver prints, and three of the members, Dr. Baldwin, Mr. Hubbard, and Mr. Hemmingway, had essayed platinotype.

Coming to the loan collection, it may at once be stated that it was exceedingly extensive. A really charming lot of views, over 100 in number, on the Norfolk Broads, had been kindly lent by the Great Eastern Railway Company. The Autotype Company, London, sent fifteen reproductions of celebrated paintings. Messrs. Elliott and Son, of Barnet, had on view a large wave study—the chief picture in the exhibition. Some of the most admired work in the exhibition was that of Mr. Richard Keene, of Derby, a gentleman, who, during the past autumn, rendered service to the Society by judging the members' competition exhibits. He had forwarded fifteen pictures —all platinotypes—the most attractive of which were six Derbyshire church interiors, four views Old Moreton Hall, Cheshire, three Haddon Hall views, Middleton-by-Youlgreave Dale, head of Loch Lomond, St. Andrew's, ruins of castle, Windsor Castle, and "Tissington Spires," Dovedale. The Eastman Photographic Materials Company sent two frames of bromide and "Solio" prints. The society was also greatly indebted to Mr. J. Leadbeater for his extensive selection of framed photo reproductions.

There was an unusually large attendance on Tuesday evening, the room being filled to its utmost capacity. From seven o'clock to a quarter past eight the proceedings were enlivened by pianoforte selections. For three-quarters of an hour, at a later period, all had their attention concentrated on a series of choice optical lantern views, illustrating peak and dale scenery, and relating to places which are well known to residents of that locality, namely, Ambergate, Matlock, Haddon, Chatsworth, Wingfield, etc. These special slides had been lent by the Editor of the Amateur Photographer. The members' slides afterwards shown were by Dr. Baldwin, Mr. E. I. Hubbard, Mr. G. T. M. Rackstraw, Mr. J. Leadbeater, Mr. H. C. Hemmingway, and Mr. J. Clarke. The slides were described by Dr. Baldwin. Wednesday night's proceedings were on very similar lines. A further series of slides were shown by means of the lantern including views of Miller's Dale, Monsal Dale, Ashwood Dale, and Buxton. The members who sent slides were the same as on the previous night, with the addition of Mr. W. Mason and Mr. J. W. Whittington.

Societies' Notes.

Frank Howard, of Wallingford, Berks, has accepted the post of hon. critic to the Lantern-slide Exchange Club (Hon. Sec., A. J. Richardson, Summerville, Dore, Sheffield), in place of A. R. Dresser, of Bexley Heath, Kent.

* * *

The awards of the judges in the Durham City Camera for the lantern-slides are as follows:—Silver medal, Mr. J. H. Gear, 52, Lincoln's Inn Field, W.C. Bronze medal, Mr. G. E. Thompson, 28a, Church Street, Liverpool. Certificate, Mr. W. E. Cowan, 106, Rye Hill, Newcastle. Special bronze medal given to Mr. Wm. Taverner, Stamford Hill, London, for his flower studies.

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The Manchester Amateur Photographic Society will hold a members' exhibition from 21st to 25th inst., with lantern-slide exhibitions each evening.

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Liverpool Camera Club.—The second exhibition of competitive photography, lantern slides, and members' work of this club was held in connection with a conversazione on 7th inst. Messrs. A. Tomkinson and E. L. Marriott kindly undertook the duty of judging in the competition, and in making known the awards stated that the work was above the average, and the competitions very keen, notably in the lantern slides. The following are the awards, viz.:—Club prizes: Class 1, three inland scenes and three seascapes—1st, silver medal, Jas. Smith; 2nd, bronze medal, Jas. Hawkins. Class 2, six portraits (untouched)—1st, silver medal, Jas. Smith; 2nd, bronze medal, Jas. Hawkins. Class 3, three enlargements, 10 by 8 and upwards—1st, silver medal, Jas. Hawkins; 2nd, bronze medal, W. A. Stuart. Special Prizes: Class 4, six views taken during club outings—1st, Thornton-Pickard's shutter, Jas. Smith; 2nd, three boxes Ilford plates (white label), Wm. Tansley. Class 7, six lantern slides—1st, Griffith's reducing camera, E. N. Ellis; 2nd, five boxes lantern plates, Jas. Smith. In classes 5, 6 and 8 no competition took place, there not being sufficient sets sent in. There was a large attendance of members and friends, and after the slides had been passed through the lantern by Mr. T. Edwards, a concert was given, at which the following artistes assisted, viz.:—Mr. Harry Collins, who gave selections from his musical entertainment, introducing solos on the banjo and mandoline; Miss Rowlands and Mr. Pride contributed songs with good effect, and Mr. C. Freeman a couple of humorous pieces. Mr. E. Youde ably officiated at the piano. The firms of Messrs. Archer and Sons, Wood Bros., Sharpe and Hitchmough, and F. V. Lloyd exhibited photographic novelties etc. As a wind up a few dances were indulged in, thus bringing a very enjoyable evening to a close.

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Settle Photographic and Lantern Society.—The above Society has been formed for the purpose of encouraging photographic art amongst professional and amateur photographers in Settle and neighbourhood. It is proposed that the Society hold its meetings once a month during the winter, at which demonstrations of the various photographic processes will be given, and opportunities afforded of seeing some of the best prints and lantern slides of the most prominent workers of the day. The subscription will be 5s. per annum, and the Society is open to all interested in its aims, whether actual workers or not. Mr. H. Vaughan Walker is Secretary pro tem.

* * *

Australian Photographs for Chicago.—Among the New South Wales exhibits at the Chicago Exhibition will be an extensive collection of photographic enlargements, executed by Messrs. Kerry and Co., of Sydney, for the Commissioners appointed by the Government of New South Wales, and representative of country life and scenery in that colony. Before being sent to Chicago they were publicly exhibited for a few days in the National Art Gallery of New South Wales, in the same room with Poynter's "Queen of Sheba," where they attracted the largest attendance on record at that place. As specimens of combined artistic taste and photographic skill, they are admittedly among the best yet produced in Australia. The pictures include representations of ox-teams hauling cedar on the Richmond River, the various operations of handling wool from the time it is ready at the shearing sheds to its being placed upon the railway trucks, the magnificent scenery of the Snowy River with Mount Kosciusko in the distance, ocean views from the romantic heights of the Illawarra range, scenes in the Jenolan and Yarrangobilly Caves, Katoomba Falls, Govett's Leap, etc. The shearing and lamb-marking scenes are excellent, but the view which will naturally excite most interest will be that of Randwick Racecourse, near Sydney. It is a picture which would have afforded several hints to Frith. It measures 14 ft. 6 in. by 3 ft. 6 in., and furnishes an excellent idea of a race meeting in one of the Australian capitals. It is probable that on the termination of the Chicago show the collection will be sent on to London.

Societies' Meetings.

Aston (Nat. Hist.).—The meeting on the 9th inst. was well attended. Mr. Walter Tylar gave a paper "How to Develop on Tour." The lecturer practically demonstrated how exposures could be tested by a few plates being developed while on the trip with such simple means as a few pieces of Willesden paper folded for dishes, an ordinary window-blind lath on a knife-edge for an extempore balance, and some ruby fabric round a candle stuck on a penny for his lamp. He showed how practical (if not orthodox) development could be performed while away from home. A piece of card (4¼ by 3¼ in. cut in the middle, and hinged by stamp paper, on which was laid the sensitive paper, and then the negative) served as his printing-frame, the whole being secured by two elastic bands. Table, dessert, and tea spoons acted respectively as his 1 oz., ½ oz., and drachm measure; while three penny pieces were used to weigh his 1 oz. of hypo, and a sixpenny piece 5 gns. of pyro. Discussion on developers in general followed. The Secretary then called attention to the fact that Mr. Tylar had kindly presented the library with a collection of photographic books, and urged the members to make the next meeting, February 23rd, "Mutual Criticism on Members' Work," a successful and profitable one.

Birkenhead.—The ordinary meeting was held on the 9th inst., Dr. W. H. Hunt in the chair. In opening the proceedings the Chairman referred to the policy of the council in providing ample instruction for beginners, and then called upon Mr. J. H. Welch to give his demonstration on bromide printing. Mr. Welch's best results are ground-glass matted prints, which so closely imitate platinotype that it is often impossible to detect the difference. After the demonstration Mr. F. Hope-Jones, the Secretary, gave a short lantern lecture in description of "Emral," the deserted mansion of the Puleston family on the Dee. Mr. Hope-Jones seems to have struck fresh ground in this interesting ruin. Its historical associations are important, though as yet its history is unwritten. Needless to say it is a perfect paradise for brethren of the focussing cloth.

Birmingham.—A large audience assembled on 7th inst. to hear an exceedingly interesting paper by Mr. C. J. Fowler, on "The River Severn from its Source to the Sea." The lecture was illustrated by a series of excellent slides, some 300 in number, which are the outcome of a survey of the river undertaken in 1891 by Messrs. Middleton and Fowler, when upwards of 400 pictures were secured. The course of the river, from the point where it rises in a swampy hollow on Plinlimmon to its reception by the Bristol Channel, is replete with interest, and some of the more famous places, such as the cathedrals of Worcester and Gloucester, Berkley Castle, Buildwas Abbey, Much Wenlock Priory, Tewkesbury, Bridgnorth.

Bristol.—On the 10th inst. Mr. G. Davey was elected a member. It was decided to hold the meetings fortnightly instead of monthly, and that a question-box should be started. Mr. Gerald Grey described the numerous beauties of Winchester and neighbourhood, illustrating them by some very good slides.

Brixton and Clapham.—At a meeting held on 7th inst. Mr. B. E Pinder, one of the members, read his promised paper upon "The Optical Lantern, its Construction and Use." With regard to the lantern itself, he advised the purchase of only those of English manufacture as being more solidly constructed and longer lived than those of foreign make. It was, however, absolutely necessary that the lantern should be fitted with the best made English condensers and objectives. With regard to the latter, the most useful focus was 8 in., the lenses being 2 in. in diameter when 4 in. condensers were used. Before showing "effect" slides, templates should be used to make the discs exactly concentric, without which it is impossible to produce registering pictures accurately. He advised that the springs on the spring plates should be weakened, and found that wash-leather pads prevented the clicking of the plates whenever a slide was withdrawn from the stage. He recommended the use of grips to hold the jets firmly when properly centered, and advised purchasers to obtain the best jets they could afford. In using mixed jets, the chamber should be well packed; he himself found that the closely woven gauze, such as is used for cheap tea strainers, compressed into a conical plug and inserted in the mixing chamber, answered admirably, especially when using the ether light. Having described the use of cylinders, regulators, and dissolvers, he proceeded to give a practical demonstration of the use of the lantern, for which purpose he had brought to the meeting a fine biunial recently, constructed for him by Norton, of Russell Square. The lights described and used were the oxy-calcium, the oxy-hydrogen, and the ether lights. He found that the ethoxo light required too much attention to use very often, but advised the passing of the hydrogen through the ether saturator instead of the oxygen. The light produced burned as steadily as the oxy-hydrogen light, but was more brilliant. He pointed out the necessity for keeping the ether in a safe place, preferably in a hole in the ground, where accidents could not happen. Having shown how to adjust the lantern with templates, etc., he proceeded to give an exhibition of elaborate effects and statuary, the use of the roller curtain also being clearly explained. At the conclusion of the paper, the following resolution was moved, "That the members of the Brixton and Clapham Camera Club, having heard with regret of the death of Mr. William Bedford, one of the judges at their recent exhibition, hereby tenders to his bereaved family their sympathy."

Burnley.—At the annual meeting of this society, held on the 1st inst., the balance-sheet, which showed the society to be in a prosperous condition, was adopted. Mr. Jno. Butterworth, J.P., was re-elected President; Messrs. J. Altham and A. H. Kellett, Secretary and Treasurer, in the place of Messrs. Sutcliffe and Lee, resigned; and a council to comprise the Rev. T. Leyland and Messrs. T. Ormerod, V. Dunkerley, J. Holgate, J. L. Lee, J. J. H. Bell, A. Howarth, and W. H. Hoghton. On Monday evening the members had the pleasure of seeing the AMATEUR PHOTOGRAPHER prize slides.

Cornish Camera Club.—A very largely attended meeting was held on the 7th inst., at the Penzance Science Schools, when Messrs. Harry Tonkin and A. Henwood Teague gave a high-class lantern entertainment to the members of the club and their friends. The views illustrated the charming and romantic scenery of the Peak district, Derbyshire, Buffalo Bill's Wild West, and of the more interesting animals and birds at the Zoo. The club are indebted to the Editor of the AMATEUR PHOTOGRAPHER, and to Messrs. Dresser and Lee, who kindly lent the 300 slides exhibited.

Eastbourne.—Ordinary meeting on 9th inst. The President, Dr. H. Habgood, gave a demonstration on "Lantern-slide Making." It commended itself especially to those who worked with hand-cameras. A detailed account was then given of the two methods, viz., contact and reduction, remarking that slides produced by the latter method were sharper and better defined than those produced by the former. He advised for a very thin negative that the slide should be under-exposed, slightly under-developed, and then intensified, the best for which he found to be the successive use of solutions of perchloride of mercury and cyanide of silver. The method of removing stains from whatever cause, also clearing the high lights, was explained, viz., hydrochloric acid ½ oz., strong solution perchloride of iron ½ oz, water, 20 oz.; soak for a second or two, well wash, refix, and wash well again. Specimens of the various processes and the different faults were shown in the oxy-hydrogen lantern. A large collection of apparatus usually recommended was on exhibition. The lecturer also showed one of Messrs. Beck's Frena hand-cameras, which was greatly admired, as were also some negatives which he had taken with the same.

Goole.—On 9th inst. was held the first public lantern night. Mr. R. Blair, M.D., J.P., presided, and there was a large attendance of members' friends. The proceedings commenced by the President giving a resumé of the useful work now being done by means of photography, and he concluded by offering prizes for the best lantern slide work produced by the members during the coming season. A number of slides by members and friends were then thrown upon the screen, but the chief attraction was the set of "Peak and Dale" slides kindly lent by the proprietors of the AMATEUR PHOTOGRAPHER; they were described by the Hon. Sec. (Mr. S. Wells), who had spent some time in the district portrayed. The views of Haddon Hall, etc., were especially good and elicited much applause from the audience.

Hackney.—Meeting held 7th inst., Mr. R. Beckett in the chair. Mr. E. L. Morgan gave a demonstration with Amidol. Its power as a developer has been so well advertised that it is unnecessary to go very fully into particulars of demonstration. Instances were given whereby modification of Amidol plates having received exposures of 1, 2, 3, and 10 sec. on some subjects were successfully developed. It was necessary to carry on development longer than usual, owing to the absence of the colour usual in pyro development. The Hon. Secretary asked whether the cartridges were any special preparation, and was informed they only contained sulp. soda and amidol. Any alkali could be used, and, in answer to a question, the lecturer said carb. of ammonium could successfully be used with it for lantern slides. Mr. Sodeau liked citrate of soda for over-exposed plates. Amidol could be used dry like pyro, owing to its easy solubility. A number of plates could be developed in the one solution. The Hon. Secretary said he had recently developed twelve bromide papers and one lantern plate, and the solution seemed to be good enough for more. He preferred the formula given by Mr. Dresser. Mr. Roder asked whether Amidol would develop Morgan and Kidd's papers. Mr. Morgan said he had not tried himself, but felt satisfied it would. Two plates of street scenes having received 1-20th sec. at *f*/8, and taken this month, were then developed and bromide papers exposed. The Hon. Secretary, in proposing a vote of thanks, said he used Amidol some long time since, but had a difficulty of getting density; he had, however, again tried and was very favourably inclined to it. Mr. Morgan said he used to use pyro before, but now gave it up in favour of Amidol. Mr. Farmer was nominated. The biunial lantern, won by the Society, was then set up, and the slides which were sent in the competition for the same put through.

Herefordshire.—A meeting was held on 7th inst. After several members had been enrolled and the ordinary business terminated, Mr. J. Parker gave a practical demonstration on bromide enlargements. A large number of the working members were present, and the utmost interest was shown in the proceedings. Mr. Parker, having explained the method of work with his "Hume's Cantilever Enlarging Camera" (with 10 in. condenser), exposed and developed before the members several pictures, enlarging the same from whole-plate size to 24 in. by 17 in. Ferrous oxalate develeper was used, and some very brilliant results were obtained. The lecturer explained that much depended on exposure, yet by using slow paper considerable latitude in the exposure was possible, and, with judicious development, results could be obtained equal to platinotype. Mr. Parker advised that full exposure should be given with slow development, and in the latter case development could be arrested, either entirely or partially, by the use of acid upon the high lights.

Leicester.—At the regular meeting held on the 10th inst. the President, Mr. J. Porritt, in the chair, one member was elected and two proposed. It was decided to hold the meetings on Thursday instead of Monday after the summer recess. The President then read a paper by Mr. Webber, of Bromley, on "Isochromatic Photography," who sent a large number of paintings, transparencies, and fifty lantern slides to illustrate his subject, and proved a most useful stimulant to the members who work in that direction. The results of isochromatised plates were still more definitely shown by the useful method of showing two prints or lantern slides of the same subject with iso and plain plates and which were exceedingly useful in showing the value of the prepared plates. The church window shown by Mr. Webber were admirable examples of the process, as also several differently coloured chrysanthemums in variously coloured vases, also several other tests in colouring, as wools, cloth, etc., which amply illustrated the utility of the process in colour photography, and in maintaining the value of the visual colour scale.

Liverpool.—The weekly meeting was held on the 9th inst. Dr. Chas. A. Kohn, of the University College, delivered to the members a very interesting lecture, the subject being "Chemistry of Photography." He illustrated his remarks with interesting experiments in a very clear and lucid manner, demonstrating the mystery of the action of light and formation of the latent image on the photographic plate. Other similar practical lectures follow every Thursday until the end of April.

North Kent.—A meeting was held at Gravesend on the 9th inst., Mr. J. C. Johnson, J.P., President, in the chair. Mr. L. E. Morgan, representing Fuerst Bros., gave a demonstration of amidol development, which was much appreciated by the members and visitors present. It having been thought that the society would be more highly appreciated and more useful if the usual facilities of a club could be offered to its members, arrangements have been made for that purpose. A room has been taken at 3, Berkley Crescent, Gravesend, which will be available at all times for the exclusive use of the members. A dark-room has been fitted up with all necessary conveniences. A successful future under the new arrangements is confidently looked for.

North London.—On 7th inst., the Rev. E. Healy in the chair, Mr. J. F. Nisbett was elected a member. Messrs. W. T. Coventon and J. Oakley were elected delegates to represent the society on the affiliation committee for the current year. Mr. Parfitt wished not to be re-elected, as he considered the delegates should be chosen from those who were not members of the P.S.G.B. Mr. A. E. Smith showed a collection of photographs of views taken in Kew Gardens, and Mr. Parfitt some very pleasing portraits taken, in order to obtain softness of outline, with the front combination of a cabinet portrait lens. They were taken out of doors, and Mr. Parfitt said he used no background to screen objects behind the sitters, as, owing to the depth of definition of the lens being so slight, such objects were not rendered on the plate. In the course of a discussion about amidol a letter from Messrs. Fuerst was read, in which they stated that, so far as they knew, amidol is not poisonous, and the reason they said in the instructions issued that the amidol substance is not to be touched with the fingers is, that if this is done it will stain them very badly. They further stated that amidol in solution will not stain the fingers. Several members thought this last statement required modification. Mr. Healy had used the developer for lantern slides and had obtained a nice warn tone, but at present had failed to get sufficient density. If was resolved that in future the meetings of the society should commence at eight o'clock sharp. The next meeting, on the 21st inst., is a lantern night, when the Convention slides of the Devon and Cornwall Society will be shown.

Oxford.—A meeting was held on the 6th inst., when the Hon. Secretary, Mr. A. Eglington, exhibited the "Peak and Dale Slides," kindly lent by the AMATEUR PHOTOGRAPHER. The slides were much appreciated, as also the excellent reading sent out with them.

Phot. Soc. of Ireland.—The annual meeting of this Society for the election of officers and council was held on the 10th inst., Mr. G. Mansfield, J.P., in the chair. After some preliminaries as regarded proposed alterations to the rules of the Society, the results of the elections were declared as follows:—Prof. J. A. Scott, M.B., President, in the room of Mr. Mansfield, who retires; Messrs. Jas. Cason and M. Hedley, Vice-Presidents; Wm. Bewley, Hon. Treasurer; J. A. C. Ruthven, Hon. Secretary. After the business of the meeting had been disposed of, a number of slides contributed by members were passed through the lantern, a set on bee keeping, by Mr. J. M. Gillies, being especially interesting.

Rochester (Naturalists' Club).—Meeting on 7th inst., Mr. C. Bird in the chair. The American slides were shown and described by Mr. J. H. Whitfield, the Vice-President. The slides were considered of very high quality and greatly admired by the members. Mr. Whitfield had the previous evening shown them to the members of the Y. M. C. A.

Sheffield.—A meeting was held on 7th inst., Mr. B. J. Taylor in the chair, when, after the routine business, Mr. J. W. Charlesworth opened the discussion, "Is Amidol a Good Developer for Lantern Transparencies?" which was taken part in by most of the members present, and eventually decided that given a good negative warm tones could be produced, after which the following excursions for the season were arranged: York and Knaresbro', May 3rd; Castleton, June 7th; and Peterboro', July 12th; and also that members who could should join the Rotherham Society's trip to Ingleton some time in May.

South London.—Ordinary meeting held on 6th inst., the President, Mr. F. W. Edwards, in the chair. After the announcement of additions to the library, Mr. T. R. Dallmeyer read a paper on "The Comparative Advantages of Wide-angle and Tele-photographic Lenses," which we print elsewhere. Considerable interest in the subject was shown by the members present. Three new members were elected.

South Manchester (Phot. Soc.)—At the meeting held last week, Mr. R. B. Barningham in the chair, Mr. C. Lord described a ramble through Switzerland with a camera. The tour was taken in the summer of 1891. This was the fifth time, said Mr. Lord, that he had visited Switzerland, but the first time with a camera, and he hoped it would not be the last, for he thought a trip to Switzerland was simply perfect from a photographer's point of view. The party went to Antwerp by way of Harwich, and train was taken for Shaffhausen and the falls of the Rhine. The first impression of the falls was disappointing. The height of them is only about sixty feet, but the breadth is nearly 400, and they have the appearance of stupendous rapids rather than a cataract. It is only by drawing close to the falls that their vast magnitude can be realised and the immense volume and force of the water estimated. One of the great attractions of Switzerland is cloudland. Clouds are always brighter and more varied in mountainous than in flat regions. It is beautiful to watch clouds from below sailing quietly along or scudding before the wind, and mark the transfiguration wrought by the glow of the setting sun. But to his mind it was more wonderful to look down upon the clouds from some peak high above the cloud line.

Walsall.—On the 30th ult. the Rev. Peter Dean gave his lecture and demonstration to the members, on "How to Make a Lantern Slide," Mr. W. J. Corbet in the chair. The lecturer pointed out that the first necessity was a good negative, full of detail, clear in the high lights and not very dense. There were two ways of making a slide, he said; one was by contact, and the other by reduction in a copying camera. For the former process gaslight was best, whereas for the latter daylight was preferable, as more even illumination was secured. He explained the action of light rays at different distances from the source of illumination, and gave the rules governing exposure. With reference to development, he advised the members to stick to the formula which was issued by the maker of the plates as being likely to produce the best results, and cautioned beginners against changing about from one brand of plates to another, but advised them to try one plate and one developer, and thoroughly master them before trying others. What was required in a lantern slide, he remarked, was absolutely clear glass in the high lights, and transparency in the shadows. He concluded by giving full instructions as to the several processes required in working a slide, and exposed, developed, and fixed one, so as to practically illustrate his remarks. Mr. Dean proved himself a thorough master of the art of slide making, and on resuming his seat was greeted with hearty applause. The Chairman acknowledged with thanks the present of a "question box" to the society by Mr. C. G. Crooke, and hoped those members who were in any photographic difficulty would drop a memorandum of the same into it. The box would be opened at each meeting and the queries replied to. A number of slides by the members were then passed through the lantern. As showing what could be accomplished by a cheap camera in careful hands, the Secretary exhibited two slides made by Mr. C. J. Windle, from negatives taken with a camera costing only 12s. 6d. (by Wm. Tylar, of Birmingham), which were perfect little gems.

West Surrey.—Usual fortnightly meeting held on 8th inst., Mr. Winsford in the chair. Mr. Morgan, of Messrs. Fuerst Bros., demonstrated the power of Amidol as a developer, and met with great success, bromide prints and plates which had received extreme exposures being developed with great ease.

SOCIETIES' FIXTURES.

Feb. 17.—LEWISHAM.—An Evening with Mr. E. J. Wall.
„ 17.—HOLBORN.—Members' Lantern Night.
„ 17.—CROYDON.—Lantern Evening, "Tramp through the Bernese Oberland," Mr. J. A. Carter, B.A.
„ 19.—OXFORD.—"National" Competition Prize Slides.
„ 19.—TOOTING.—Lantern Night.
„ 20.—RICHMOND.—"Platinotype Process," Mr. S. G. B. Wollaston.
„ 20.—SOUTH LONDON.—"Problems in Photographic Arithmetic," Mr. W. Rice.
„ 20.—KENSINGTON AND BAYSWATER.—Lecture, Mr. A. Horsley Hinton.
„ 20.—PUTNEY.—"Development of Rollable Films," by the Eastman Company. Meeting at 8 p.m., Charlwood Road.
„ 20.—YORK.—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
„ 20.—STOCKTON.—"The Optical Lantern at Home," Mr. F. A. Graham.
„ 21.—WEST LONDON.—Technical Society Meeting.
„ 21.—BRIXTON AND CLAPHAM.—"Stereoscopic Photography," Mr. J. A. Butler.
„ 21.—BIRMINGHAM PHOT. SOC.—"A Recent Visit to Egypt," Mr. J. J. Button.
„ 21.—HACKNEY.—"Lantern Slide Colouring," Mr. L. J. Beckett.
„ 22.—THE PHOTOGRAPHIC CLUB.—Monthly Lantern Meeting.
„ 22.—EASTBOURNE.—"Amidol," Mr. Morgan.
„ 22.—STOCKPORT.—AMATEUR PHOTOGRAPHER 1892 Prize Slides.
„ 22.—LIVERPOOL CAMERA CLUB.—Ordinary Meeting.
„ 22.—ASHTON-UNDER-LYNE.—"Flashlight Photography and the Autotype Process," Messrs. Glazebrook and Cheyne.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer questions by post.

QUERIES.

5927. **Pryo Solution.**—If there are any readers of the AMATEUR PHOTOGRAPHER who use a 10 per cent. solution of pyro which keeps well, I shall be glad of particulars.—M. Y. S.

5928. **Reducer.**—I have several very dense negatives which are too valuable to tamper with. Which do your readers advise me to do—to reduce (if so, the best reducer), or to print with a very rapid and sensitive paper; and which is the best paper to use?—KONO.

5929. **Uranium Intensifier.**—Can any one give me a formula and particulars for a strong uranium nitrate intensifier.—AMID. C.

5930. **Restrainer.**—Can bromide of ammonium be substituted for bromide of potassium in the Ilford developer.—DINA K. L.

5931. **Methylated Spirit.**—I should like to know if it is possible to free methylated spirits from resin; if so, how.—Q. ROMA.

5932. **Spotting.**—Can any of your readers give me particulars for spotting prints previous to enamelling them?—L. C. A. P. P.

5933. **York.**—Will some York friend give name and publisher's name of best guide-book to this city?—TENDERFOOT.

5934. **Shutter.**—I should be glad if any of your readers could tell me which is the best shutter for Zeiss's Anastigmat, serie 3, No. 4.—Tagus.

5935. **Changing Bags.**—I am obliged to Mr. Bennett for his notice of my query, but he has not given an answer to my question. His advice may be good, but what I require to know is which is the best bag, and one that can be thoroughly trusted as light tight, to carry in my pocket, for occasional use in the field. May I repeat?—GRAPHO.

5936. **Lens.**—Can anyone tell me where I can get a lens, wide angle preferred, that will work at *f*/8 and cover 2 inches square sharp, of about 3 or 3½ focus? All catalogue lenses that I can see would give the image too large for the size plate, as they are for quarter-plate.—GRAPHO.

5937. **Flash Lamps.**—Would any of your readers tell me which is the best lamp for magnesium powder? I have three of Beaurepaire's "Meteor," that is considered here in Germany as one of the best, and am sorry to say the results I have obtained are far from satisfactory.—V. TAGUS.

QUERIES UNANSWERED.

Jan. 20.—Nos. 5911, 5913.
„ 27.—Nos. 5914, 5915, 5916.
Feb. 3.—Nos. 5919, 5922.
„ 10.—Nos. 5923, 5924, 5925, 5926.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

F. E. CURREY.—The want of depth of focus is partly due to the long focus of your lens, and if you were to use a shorter focus lens you would get over this difficulty. A concentric of the same focus as your R.R. would not present any advantage in this respect, and as this lens will only cover sharply at *f*/19, it has no advantage for ordinary street views, but in copying flat objects or architectural work it is a splendid instrument.

HAND-CAMERA.—(A) The advantages of a tripod camera are that it has swing back, reversing back, cross and rising fronts, and probably ,would be far lighter than a half-plate hand-camera, and have a longer extension of bellows. Certainly for landscape work we cannot recommend you to get a half-plate hand-camera. (B) The slides are efficient, but heavy.

TRIX.—(1) You cannot do better than obtain one of the lenses named in your letter, which are superior to the lens you sent us, and really there is very little pick in them. (2) Your fault was in not keeping the bath. An acetate bath should be kept twelve hours before use. Did you wash your prints quite free from silver first ?

J. C. O.—We believe the Barnett slides may be used with ordinary ones, but are not quite sure. Chadwick, of Manchester, who was the agent for these, has now given up keeping them, and stocks instead Scott's, which are light and efficient.

R. G. S.—A. Schwarz and Co., 9, New Broad Street, E.C., are the agents for eikonogen and fixing cartridges. The former are to be obtained in boxes of ten at 3s., the latter in boxes of ten at 1s. 9d.

MISS BROUGHTON.—We should say the negative is correctly exposed, but the print is flat and weak. An inch could be spared of the foreground. It would probably come in Class II. in our competitions.

KERRY AND CO.—Many thanks for prints; have inserted notice.

INQUISITIVE.—We have tried the lens named, and it is a fair all-round lens, but certainly inferior to the rapid symmetricals. We should certainly advise the Zeiss if you can go to that price. The freedom from astigmatism of these lenses gives them a great advantage near the edges of plates.

J. V. B.—Send us measurements of the conservatory and the ground plan. showing the rooms or gardens which it opens into, and focus of lens, then we will tell you how to proceed.

F. TURNER.—(1) Name it. (2) We will see what can be done for you in this way, but it is rather late for this season.

D. H. ROXBURGH.—Schnauss' "Collotype," published by Iliffe, price 5s.

READER.—The process of enlarging to life size is exactly same as enlarging to 12 by 10 or any smaller size; it is merely a question of degree of enlargement. Morgan and Kidd will supply canvas already coated with bromide emulsion. After enlarging and developing, the picture should be coated with a rather weak size, dried with a gentle heat, and then painted.

E. H. ANDREW.—We are very sorry. It appears this week, and will not happen again.

MISS COLLIER.—Many thanks for letter, which is quite satisfactory.

J. W. K.—(1) Yes. Absolutely the same control as with ordinary pyro and ammonia, and you can make it up into three solutions. (2) Try that plate first. (3) Put a dab on the middle of plate and use a roller squeegee to distribute. Always pleased to help you.

WM. BULLWEN.—The portrait is certainly worth preserving. Can you not vignette out the crack? If not, make a transparency from it by contact, keeping the printing-frame in rapid motion all the time, then touch out the crack on the transparency as much as you can, make a negative by contact from this, and proceed again to the same operation, or else make a good bromide by contact, touch out the crack on print, and copy print.

X.—The only ill effect is that some of the naphtha is separated on adding water, and it may give a milky appearance to negative.

R. GILLE.—The lenses named are, we believe, cheap French lenses, but we have no actual experience of them and it is some years since we saw them.

LANCET.—(1) Mason's toning bath is—

Ammonium sulphocyanide	15 gr.
Salt	80 ,,
Chloride of gold	$1\frac{1}{2}$,,
Water	10 oz.

Wash your prints well, then tone as usual, and fix. (2) The hypo detector is—

Potass. permang.	2 gr.
Potass. carb.	20 ,,
Aq. dist.	40 oz.

Add a few drops to a test tube full of water and allow the print or negative to drain into it; if the hypo is present the colour is discharged.

F. MACKENZIE.—Many thanks for prints, which are very good, but we cannot reproduce.

ERA.—Yes. slides from your negatives would be eligible; shall be pleased to give you a helping hand with them if we can.

CRACKED.—(1) See answer to Mr. Wm. Bullwen in this column, *re* cracked negative. (2) A very simple one is—

I.

Hydroquinone	100 gr.
Sodium sulphite	400 ,,
Water	10 oz.

II.

Potassium carbonate	300 gr.
Water	10 ,,

For use mix 1 part of No. 1 with 1 part of No. 2 and add 1 part of water; if a restrainer is required, add about 10 drops of 10 per cent. solution of citric acid.

J. EROS, JUN.—Zeiss Anastigmat, Series III., No. 4, 7¼ in. focus, working aperture *f*/7·2, price £6.

HALF-PLATE.—(1) No; you can get no better set at the price, and we should choose the lower price. (2) Ashford's Cyclist's or Watson's Cyclist. (3) Ashford three-fold stand.

TOM REKELEY.—Our candid opinion is that your negative is not so much under-exposed as insufficiently developed, and perhaps fogged in developing. Treat it to a bath of citric acid and alum or hydrogen peroxide, wash well, and intensify with the old uranium intensifier, dry, and print. If it will not give you a good print make a transparency on a chloride plate by contact, develop carefully, intensify, and make another negative on a chloride plate.

W. E. A.—We have no unmounted chloride prints, but we will try and pick you out some which you need not return. The best thing to matt chloride prints is to squeegee them down to matt celluloid, which may be obtained from Fallowfield, 146, Charing Cross Road, Adams and Co., Aldersgate Street, or almost any dealer. We always use the bicarbonate bath now;—

Chloride of gold	2 gr.
Bicarbonate of soda	90 ,,
Water	10 oz.

C. O.—We are sorry to note the contents of your letter. We have written about it, and will write you privately.

DR. G. MICHELSON (Hamburgh).—The fault of all your prints seems to lie in the negatives, and this may be due to the plates you are using, for it may be accepted as an axiom that foreign plates are not so amenable to pyro and ammonia as English. They seem made for development with iron. You might discard the ammonia altogether, and try a fixed alkali instead. Thus, use for a half-plate, pyrogallol 0·3 grammes, sodium sulphite 1·5 grammes, distilled water 30 c.cm.; and for the accelerator a mixture of soda and potash, which is known as the American standard developer—

Sodium carbonate	25 grammes
Potassium carbonate	25 ,,
Potassium ferrocyanide.. ..	25 ,,
Distilled water	250 c.cm.

Apply the pyro and sulphite to the plate first and let it soak for a minute, measure out about 4 c.cm. of the accelerator, pour the pyro into it, and reapply to the plate; rock the dish for a few minutes, and if no image appears add another 4 c.cm. in the same way. (1) This shows fog at the foot. (2) Generally fogged; probably giving the negative a clearing with alum and citric acid and then intensifying would improve it. (3) Too much foreground, and negative weak. (4) This, we should say, was developed with iron. Printing slower in a weak light, or the use of one of the gelatino or collodio-chloride papers would improve it. (5) Wants intensifying. (6) Ditto, and shows fog. (7) Ditto. (8) Not sharply focussed. (9) Again fog, wants intensifying. (10) Very fair. (11) Spoiled by the fog at end. It wants intensifying, and by carefully dodging could be made a good thing of. (12) Very flat; wants intensifying. (13) The best, technically. (14) Evidently you have made a double exposure, for there are traces of a figure in this house. (15) Does your lens cover sharply? It looks rather as though it cut off the corners of field. (16) Wants clouds, and negative wants intensifying. We shall be pleased to help you further if we can.

SCIENTIST.—(1) Yes; either the back or front combination, preferably the back, may be used as a single lens. (2) You can rely upon the English makers. (3) If you are going to take plates at all, then we should say take those you are accustomed to, although the isochromatic will give you better rendering of the colours in architecture. At any rate, learn before you go how to work the plates.

A. M.—(A) You could use an $8\frac{1}{2}$ in. on a quarter-plate, but the picture angle would be small, and for instantaneous work there would be but little depth of focus, and your shutter would have to work at a greater speed, but we do not see the necessity of having a half-plate hand-camera. (B) From our experience we should say *b* is the most satisfactory and reliable. (C) If you always enlarge from a given size to a given size you may focus once for all and fix it, but would it not be well to consider whether you could not improve it artistically, but not enlarging all the negative, or not including it all on the paper. The distance would be approximately 21·5 in., for taking the enlargement to be $\frac{20}{13}$ or $10 \div 6\frac{1}{2}$ we get $(\frac{20}{13}+1) \times 8\frac{1}{2} = \frac{561}{26} = 21{\cdot}5$, etc. (D) No; and there is no work published which is at once exhaustive and clear. We hope to write one, however. (E) No; the light is too yellow. (F) No; we believe it to be still in existence. We are always glad to help you in any way that we can.

R. BASSETT.—(1) Over-toned and flat; more careful printing and toning would give you a good picture. (2) Wants half an inch off foreground. (3) Good technically. (4) Ditto. (5) Wants sky and more foreground. (6) Over-toned, flat, and poor, no artistic qualities. (8) Not artistic, and over-toned. (9) Ditto. (10) Camera not straight, and wanting artistic merit. (11) Over-toned. (12) Spoilt by the peculiar halo round head.

J. H. CRABTREE.—It takes some time for the medals to be struck and engraved. As soon as we receive it we will send on.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence*** *Every additional* ***three*** *words,* ***one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one*** *word; compound words count as* ***two*** *words.)*

DEPOSITS.—*money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge 1s.*

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of* 3d. *to cover postage.*

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR, AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.,*** *or a commission of* ***2½ per cent.,*** *upon the sale price of the apparatus.*

Bicycles, Tricycles, etc.—Splendid pneumatic safety, £8; also light lady's tricycle, £6.—5, John Street, Wolverhampton.

Cameras, etc.—12 by 10 Kinnear camera, two slides, eight inner frames; exchange Kodak.—Cornaby, Llandudno.

Whole-plate camera, brass-bound, measures when closed $10\frac{1}{2}$ by 8 by $2\frac{3}{4}$, suitable for lady or outdoor work, brand new, cost £7 10s., will take £3.—Lancet, 1, Hungerford Villas, Long Ditton, Surrey.

Whole-plate Underwood's Compactum camera with additions, one slide, 37s.; half-plate camera, two slides, 26s.; Griffiths' magazine hand-camera, size 5 by 4, 30s.—Wratislaw, Braunston, Rugby.

Dark Tent.—Rouch portable dark tent, with waterproof travelling case, in perfect condition, cost price £6, price 30s.—Dollery, 57, Charing Cross.

Hand-cameras, etc.—Adams' Ideal hand-camera, good condition, price £3 12s. 6d.—C. Corder, 77, Buckingham Road, Brighton.

Shew's Eclipse hand-camera, fitted with Eastman roll apparatus, almost new, price £6 10s.—J. C. Hanbury, 104, Sutherland Avenue, W.

C Daylight Kodak, only used twice, excellent condition, 77s. 6d. — B. Cartwright, Radley College, Abingdon, Berks.

Lenses, etc—Ross's extra rapid universal symmetrical lens, $4\frac{1}{4}$ by $3\frac{1}{4}$, iris diaphragm, new, cost £5 10s., will take £4 10s.—Parker, 96, Westborough, Scarborough.

Ross' quarter-plate landscape lens, 16s.—Dean, 118, Soho Hill, Birmingham.

Great bargains. Pair correctly-matched stereo lenses, 6 in. R.V. iris, £2 18s. 6d.; 4 in. focus M.A.R., £5, by Taylor and Hobson; new patent concentric do., 3 in. do., £7 3s.; 4 in. do., £7 3s.; 6 in. do., £10 15s., by Rose; all carefully paired by makers; one each Wray's R.R., $11\frac{1}{2}$ focus, £4 9s. 6d., iris; do., $5\frac{1}{2}$ in., £2 15s., iris; each perfect and genuine.—No. 372, office of this paper, 1, Creed Lane, E.C.

First quality new rapid rectilinear, Waterhouse stops, in case, removable hood, focus $11\frac{1}{2}$ in., 35s. —Miss Summers, Hillseley, Glos.

Sets.—5 by 4 mahogany camera, leather bellows, three double slides, Lancaster's Instantograph lens, shutter, and stand, 30s. the lot.—J. R., 37, Fisher Street, Canning Town.

Chadwick's $6\frac{1}{2}$ by $4\frac{1}{4}$ stereo camera and ten of Barnett's dark slides, three pairs of lenses, 3 in., 5 in., 7 in. focus, also Taylor Hobson's half-plate landscape lens with front for this camera, Thornton-Pickard's time and instantaneous stereo shutter, case containing the same and four-fold light tripod, all new last year, scarcely used. What offers for the whole or part?—F. Byles, Ashfield, Bradford.

7½ by 5 camera by Hare, fitted with all latest improvements, also two Ross' lenses, one rapid rectilinear, the other a wide angle lens, also Collier's bamboo tripod, and Kershaw shutter, price, including case, £20, cost £30.—J. C. Hanbury, 104, Sutherland Avenue, W.

Sundries.—Will exchange forty numbers AMATEUR PHOTOGRAPHER, April to December inclusive, for Wormald's Photomnibus, complete.—20, Parsonage Street, Salford.

AMATEUR PHOTOGRAPHER, unbound, 1892, excellent condition, only copy missing, January 15th, no exchange. What offers?—Miss S. Ridley, Hollington, Newbury.

"British Journal of Photography," 1890, '91, '92, 5s. volume; AMATEUR PHOTOGRAPHER, volumes 14. 15, 16, 3s. volume; "Home Portraiture," numbers 1886 and 1890, 1s. 6d. the two; "Photographic Review of Reviews," vol. 1, with index, 4s. 6d.; all as new. Offers? Exchange. — 3, Walpole Street, Wolverhampton.

WANTED.

Cameras, etc.—Wanted, good old whole or half plate box camera. with double dark slide, cheap.—J. Cooper, Sandsend, Whitby.

Quarter-plate Lancaster Instantograph (1892), with three double backs, in good order, no lens or tripod.—J. Walker, Back Pool Fold, Chapel Walks, Manchester.

Cameras, Lenses, etc.—Wanted, good half-plate camera and lens, front focussing, long extension. To be sent on approval to the Editor, AMATEUR PHOTOGRAPHER, 1, Creed Lane, E.C.

Dark Slides.—Wanted, 9 by 7 dark slides, single or double; state make and price.—V. Dunkerley, Bank Chambers, Burnley.

Exposure Meter.—Watkins' exposure meter, must be cheap.—Lancet, 1, Hungerford Villas, Long Ditton, Surrey.

Hand-Cameras. etc.—Wanted, hand-camera, reflector, focussing, Vanneck or similar type, full details and lowest cash price.—Moorhead, Ardenlee Avenue, Belfast.

Wanted, hand-camera (detective), quarter plate, Fallowfield's Facile or other first class make; must be a first-rate instrument; send print and state price to Editor of "Amateur Photographer," 1, Creed Lane, E C.

Wanted, quarter-plate Magazine hand-camera, Adams' Ideal or Optimus preferred. Exchange Cassell's Encyclopædic Dictionary, complete, in seven vols., handsomely bound.—Stanesby, Rawtenstall, Manchester.

Lenses, etc.—Wanted, accurately-matched pair R.R. lenses. 5 by 4 or 6 by 5. 6 in. equivalent focus.—Willis, 40, Lowndes Square, London

Wanted, half-plate portrait lens, *f*/4, good quality, for rapid instantaneous work.—Ampho, office of this paper, 1, Creed Lane, E.C.

Sets.—Wanted, half-plate set; exchange harmoniflute, or lion-head fiddle, or printing press.—Holmes, Chemist, New Southgate, N.

Wanted, good 7½ by 5 or whole-plate set.—Dr. Wm. Brydon, Bridge Street. Hawick, Roxburgh.

Stereo Lenses.—Wanted, pair of good R.R. stereo lenses.—J. C. Oliphant, 23, Charlotte Square, Edinburgh.

Sundries.—12 by 10 apparatus, studio accessories; exchange Singer's safety bicycle.—P. Wilmington, Martock, Somerset.

It is unnecessary to send an advertisement for the "Sale and Exchange." column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Cameras and Sets.—10 by 8 camera fitted all latest improvements, back and front extension, for wide-angle pictures, leather bellows, reversing back, rising and falling front, two double slides. grand condition, take £6 10s. lot; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; Morley's 7½ by 5 patent camera, double extension, leather bellows, rising and panel front, swing back, three double slides, Morley's 8 by 5 rapid rectilinear lens, Waterhouse stops, folding tripod and case. £6 12s. 6d.; Lancaster's half-plate Instantograph camera, double extension leather bellows, moveable baseboard, rising, falling, and cross fronts, fine lens, iris stops, double slide, folding stand and case, 50s.; half-plate Lancaster's special brass-bound Instantograph as new, wide-angle movement, double extension leather bellows, etc., Lancaster's lens, iris stops, special see-saw shutter, two brass-bound double slides, folding stand, and case, £4 12s. 6d.; half plate camera, the Earl, by Thompson, Aldersgate Street, double extension leather bellows, rising and falling front, swing and reversing back, fitted fine rectilinear lens, good definition, Waterhouse stops, two double dark slides with metal divisions and folding stand, warranted as new, £4 12s. 6d.; Rapidograph half-plate camera, by Perken, Son, and Rayment, double extension, leather bellows, reversing and swing, three double slides, fine rapid rectilinear "Leviathan" lens, iris stops, grand definition, three-fold stand and case, £6 17s. 6d.; half-plate Underwood's Instanto camera, leather bellows, square wide-angle movement, rising, falling, and cross fronts, double dark slide, quarter carrier, rapid rectilinear lens, Waterhouse stops, and folding stand, £3 17s. 6d.; half-plate "Duke" camera, double extension leather bellows, rising, falling, and panel front, back and front extension, two double slides, metal division, rapid rectilinear. Waterhouse stops, and folding stand, as new, £6 5s.; quarter-plate extending camera, bellows body, rising and falling front by Morley, Islington, good landscape and portrait lens, double dark slide, and folding stand, 22s. 6d.; Lancaster's quarter-plate extra special brass-bound Instantograph, triple extension, wide-angle movement, two brass-bound double slides, fitted fine rapid rectilinear lens, Waterhouse stops, and three-fold mahogany stand, set complete and as new, £3 12s. 6d.; quarter-plate Instantograph camera, double extension, etc., Instantograph lens, shutter, two double slides, and folding stand, 32s. 6d.; quarter-plate Lancaster Le Meritoire set, complete, camera, lens, two slides, and stand, best condition, 27s. 6d.; quarter-plate Underwood's Convention set, camera, lens. two slides, and stand, best order. 32s. 6d.; quarter-plate Le Merveilleux set, by Lancaster, complete, 15s.; quarter-plate extending camera, best order, good lens, two double book-form slides, and folding stand, 17s. 6d. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Hand Cameras.—Adams' Ideal hand-camera, all latest improvements, grand condition, fitted R R. lens, time and instantaneous shutter, two finders, carries 12 quarter-plates, covered morocco, £5 12s. 6d. lowest; No. 2 Talmer hand-camera, as new, fitted R.R. lens, time and instantaneous shutter, two large finders. level, bag changing, carries 12 quarter-plates, £3 17s. 6d.; Ariel pocket camera, leather extending bellows, fitted Wray's 5 in. R R. lens, Thornton-Pickard shutter, three double book-form slides with catches and clips, Taylor and Hobson finder, the set fitted in waterproof case, very light and portable, as new, £5 5s.; Tit Bits hand-camera. good lens, two slides, covered leather, best order, 10s. 6d.; No. 1 Talmer, fitted landscape lens, rotating stops, time and instantaneous shutter, bag changing, carries 12 plates, in case, £2 17s. 6d.; Lancaster's ¼-plate Rover hand-camera, fitted Lancaster's special Silver Ring rectigraph lens, iris stops. patent see-saw shutter, finder, etc., in leather case, as new, 63s.; Fallowfield's Facile, carries 12 quarter-plates, good lens, shutter, etc., finest condition, £2 12s. 6d.; Optimus detective camera, Optimus rapid rectilinear lens, time and instantaneous shutter, adjustable focus, three double slides, covered leather. two finders, finest condition, £4 5s.; No. 4 regular Kodak, fitted rapid rectilinear lens, time and instantaneous shutter, adjustable focus. two finders, carries 100 films, £6 15s.; No. 1 Kodak, best order, rapid rectilinear lens, shutter. etc., carries 100 films, in leather case, 37s. 6d.; Radial hand-camera, by Marion, fitted Soho R.R. lens, shutter, focussing, carries twelve quarter-plates, in Marion's leather, as new, £5 16s. 6d.; "A" Daylight Kodak, as new, good lens, shutter, finder, covered leather, as new, 25s.; Houghton's Automatic hand-camera, guaranteed as new, rapid rectilinear, rotating stops. Thornton-Pickard shutter, carries 12 quarter-plates, fine camera, £4 10s.; All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Dallmeyer 10 by 8 No. 3 rectilinear landscape, patent, grand definition, covers well, Waterhouse stops, 13½ in. focus, £4 17s. 6d.; whole-plate wide-angle lens, by Clement and Gilmer, Paris. rotating stops, 7½ in. focus, 30s.; Optimus portable symmetrical, size 9 by 7, rotating stops, covers well, works *f*/11, as new, 65s.; 9 by 7 Optimus rapid Euryscope lens, Waterhouse stops, movable hood, grand definition, as new, £55s.; whole-plate rapid rectilinear lens by Parker, Holborn, fine definition, Waterhouse stops, as new, 42s.; whole-plate portrait lens by Laverne (Clement and Gilmer), as new, Waterhouse stops, rack focussing, covers well, £3 3s.; grand article, half-plate "Black Band" rectilinear by London Stereoscopic Co., movable hood, Waterhouse stops, works *f*/8, finest condition, 45s.; Lancaster's half-plate silver ring rectigraph lens, iris stops, covers well, in leather case, 50s.; half-plate Clement and Gilmer panorthoscopic rectilinear lens quite new, Waterhouse stops, fine definition, 50s. All above lenses are warranted as described.—On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Every description of apparatus bought, sold, or taken in exchange.

Magic Lanterns and Slides. — Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

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Hire Department is now perfect. Largest and best collection of slides in the world; over 200,000 always in stock. Temperance, travels, Scripture, educational, comic, tales, etc. Cheaper than any other house, no extra charge for coloured slides or effects. Special terms for large quantities.—Walter Tyler, 48, Waterloo Road, London

Lanterns and Slides.—If you wish to hire, purchase, or exchange, you cannot possibly do better than go to Walter Tyler, who makes this business a specialite, and you will thus save dealer's and all intermediate profits.—Walter Tyler, 48, Waterloo Road, London.

Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps. Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; scientifically constructed, not commercial; several whole and half plate for sale, cheap.

The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Science Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

Magic Lanterns, Magic Lanterns.—Largest assortment in the world, cheapest and best, nicely japanned lantern, 4 in. double condensers, portrait combination front lenses, rack and pinion, four-wick lamp, in case, £1 7s. 6d. Others more elaborate, but as cheap.

The Docwra Triple Prize Medal, highest award, supplied to Dr. H. Grattan Guinness, Capt. C. Selwyn, Madame Adelina Patti, and the Royal Polytechnic, etc.

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Fine Triple Lantern; telescopic draw tubes, four set of high-class lenses, £38 10s., worth nearly double. Given away.

Special Triple; mahogany, entire solid brass fronts, £12 12s.; a really good lantern, unequalled.

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SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

The Amateur Photographer

Telephone No. 1645

Telegraphic Address: VINEY, LONDON

Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 438. Vol. XVII.] FRIDAY, FEBRUARY 24, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

Our Views.—New Central Club and Institute—No other Club like it—The Provisional Committee—The Club Cosmopolitan—Existing Clubs—The P.S.G.B.—The Camera Club—The L. and P.—Promise of Support—A Possible Institute—Amateurs *v.* Professionals—The N.A.P.P. and the New Club—Redditch Exhibition—Devon and Cornwall Camera Club Convention Slides—Amidol—The Formula Used—A Paper by Mr. Rice—Width of Angle *v.* Picture Angle—An Italian Photographic Tour.

Leader.—A Standard Light

Letters to the Editor.—The Twin Lens Hand-camera (Royal Mail)—The Photographic Convention (Worth)—Lightning Photographs (Anderson)—Slides for Loan (Thomas)—Position of Sun in Calculating Exposures (Watkins)—Copying (Livett)—Instantaneous Shutters (C. P.)—An Anachronism (Huggins).

Our Lantern Screen (Illustrated).—Our Dissolving Views—Lantern Slides by Reduction—Monthly Competition.

Articles.—Some Problems in Photographic Arithmetic (Rice)—Lantern Slide Making—Photogrammetry (Reed)—Mounting Lantern Slides (Ross).

Apparatus.—Diamidophenol—Toning and Fixing Cartridges—The Zoka Hand-camera—Butcher's Unique Lamp.

The A. B. C. of the Lantern.

Exhibitions.—Woolwich—Durham City—Holborn Camera Club.

Societies' Notes.

Societies' Meetings.—Burnley—Croydon—Darlington—Derby—E. London—Fairfield—Greenock—Hackney—Harringay—Ipswich—Leigh—Lewisham—Leytonstone—Liverpool—Newcastle—N. Middlesex—P.S.G.B.—P.S J.—Richmond—Rochester—W. London—Wolverhampton—York.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Lantern-Slide Competition, No. 45.—Latest day, March 11th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, March 24th, 1893.)

PROPOSED NEW CENTRAL PHOTOGRAPHIC CLUB AND INSTITUTE.

A proposal has recently been discussed and adopted by a provisional committee, having for object the establishment of a photographic club and institute, occupying a central position in London, easily accessible from the principal railway termini and by the chief omnibus routes, etc, and therefore convenient both for town and country members. The provisional committee discussed the following leading points of the scheme:—

1. That the club be called the Central Photographic Club.
2. That the club premises be open during recognised club hours, refreshments being obtainable, and the premises to comprise meeting room, smoking room, library, dark-room, and other photographic and ordinary club conveniences.
3. That membership be open to all interested in photography, both in town and country.
4. That the subscription for town members be £1 1s., and for country members 10s. 6d. per annum.
5. That it is desirable to make the social element a strong feature of the proposed club, while at the same time technical photographic meetings, lantern entertainments, exhibitions of pictures, apparatus, etc., should also be held.

The idea of the proposed club as outlined above is strongly supported by a great many gentlemen who have expressed their intention of joining. For this and other reasons a very large membership may be anticipated. A meeting (to which all interested in the proposed club are hereby invited) will be held on Monday, March 6th, at eight o'clock, at the Memorial Hall, Farringdon Street, E.C., to appoint a permanent working committee for organising the club, to discuss details and suggestions, etc., and generally to arrange preliminaries.

Provisional committee:

Birt Acres, A. Cowan, T. E. Freshwater, F.R.M.S., F. W. Hindley, J. Howson.

Redmond Barrett, R. Beckett, F. W. Edwards, T. Fall, E. Howard Farmer.

R. P. Drage, Wm. Fenton Jones, A. Haddon, A. Horsley Hinton, John A. Hodges, Charles H. Oakden.

J. Traill Taylor, T. Bolas, T. C. Hepworth, H. Sturmey, E. J. Wall, Thos. Bedding.

AT last we are able to give the above authoritative information upon the proposed new central club. And we supplement the above by a few considerations which will perhaps put the matter more clearly before our readers.

◆

IN the first place we may point out that there is at the present time no such club in existence, save the Camera Club, and this, as is well known, admits amateurs only, whereas the new club would be cosmopolitan in the widest sense of the word.

◆

IF we take the provisional committee, we shall see that it is composed practically of four classes, the first representing the manufacturers and wholesale and retail trades the second representing the professional, and teachers of photography, the third representing amateurs, the fourth representing journalism.

◆

IN these four classes we think it is possible to say we have every branch of photography represented, and undue prominence has been given to no class in particular. Cosmopolitan in the very widest sense of the word it is hoped the club will be, and that it may form one of the most successful and strongest bodies connected with photography has been all through the aim of the Provisional Committee.

◆

IT may, of course, be said that there are existing clubs or societies which are sufficiently central to render this unnecessary, but let us take them in order and see if it is so.

(1) The Phot. Soc. of Great Britain.
(2) The Camera Club.
(3) The Photographic Club.
(4) The London and Provincial Photographic Association.

◆

THE P. S. G. B. has, it is true, club rooms, but no one, not even its most ardent supporter, will claim that it is a social club-house. It has its own particular line of work, and may, and we hope will, still continue to be for many years as useful, if not more so, than in the past.

◆

THE Camera Club, as we have already pointed out, is entirely out of the running. The Photographic Club, which has the social element strongly developed, only meets once a week.

◆

THE London and Provincial Photographic Association only meets once a week, and has no permanent home of its own. We have thus disposed of the four London clubs and societies.

◆

IT is an open secret that the Provisional Committee thought it only right to lay the scheme before the above societies, with the exception of the Camera Club, and all refused to support it officially, though looking at the Provisional Committee, we recognise members of the Camera Club, the P. S. G. B.—in fact, one of the Council of same—the Photographic Club, and the London and Provincial.

◆

IT is no idle boast of the Committee that the idea of the proposed club has been strongly supported. The promises of joining are very numerous, and from the most influential and leading men in the photographic world.

◆

IT will be noted that it is called a "proposed new central photographic club and *institute*," and in this last word lies, we think, a hint as to the possible outcome of this idea, which has not been bred in any hole or corner, or in any particular interest, but is to be useful to all, and not antagonistic to any existing society, either central, suburban, or provincial. It would be, as its title implies, a central home for photographers.

THE old question of the relations between amateurs and professionals has cropped up again, and, speaking at the meeting of the National Association of Professional Photographers last week, the president, Mr. Thos. Fall, said that he believed that on the whole the amateur had been of use to the professional, and he was sure that the professional had always helped the amateur whenever he could. There was one way in which some amateurs had greatly injured the professional, and that was by their hypocritical and often ignorant criticism of proofs sent home to their friends. In many cases this caused sitters to be dissatisfied with photographs that were really excellent, both technically and as likenesses, and to demand a re-sitting.

◆

MR. FALL further strongly recommended an effort to affiliate with some existing or projected body, preferably in London, by means of which, while holding their own purely professional meetings on a special meeting night, they could also arrange to meet one or more provincial members, whenever they might be in London. The proposed new central Club seemed likely to offer exactly the advantages they wished for; and they, as a body of 150 representative professionals, could form a very strong and helpful section of any photographic society they joined.

◆

AN exhibition of pictures, works of art, photographs, etc., will be held at Redditch, commencing April 1st. Medals are offered for the best work, not exceeding whole-plate in each class, for platinotype, bromide, and silver prints in landscape and portraits. All entry forms must be sent in to Dr. Page, Richmond House, Prospect Hill, on or before March 28th. Entry forms and full particulars may also be obtained on application.

◆

THE Convention meets this year, as is probably known to our readers, at Plymouth, and to assist intending visitors the Devon and Cornwall Camera Club, as announced by a letter in our correspondence columns, have prepared a set of slides which they are willing to loan to any photographic societies on application. We would strongly recommend all interested in the Convention to immediately put the screw on their secretaries to apply for them.

◆

MESSRS. MAWSON AND SWAN have given us a negative which will act as a warning to all users of amidol. The negative has been cut in two, one portion being developed with a freshly-made solution and the other with a solution three weeks old. That portion treated with a fresh solution is a good dense negative, whilst that treated with the old solution is extremely thin and ghost-like. We shall be pleased to show this to any visitor.

◆

IF we remember correctly, a note on this fact was made at the London and Provincial Photographic Association one night. Anyhow, Messrs. Mawson and Swan's experiments are of value, and every user of this developer will do well to keep this salt in the dry state and dissolve as required.

◆

FOR some considerable time we have followed this plan of keeping a solution of sodium sulphite, 1 in 4, and adding a little amidol to the solution in a measure. From its ready solubility there is no trouble in this method of procedure. The actual formula used by Messrs. Mawson and Swan was—

Amidol	4 gr.
Sodium sulphite	40 „
Distilled water..	1 oz.

◆

WE publish in this issue some very useful notes of a lecture given by Mr. Wm. Rice, before the South London Photographic Society on Monday last, which contain some capital suggestions, and to us a perfectly new method, and a very easy one, of finding the "picture angle" included by any lens on a given plate.

The term "width of angle," it seems to us, may well be replaced by the term "picture angle," which represents far better what is included when focus of lens and width of plate are given.

* * *

Messrs. H. Gaze and Son have instituted a photographic tour to Italy, which will be under the conduct of a gentleman who is not only a photographer, but who also speaks all the languages. The party, it is proposed, will leave London on March 19th, and return on April 9th. The terms, inclusive of absolutely everything, are only £40. Full information of the tour and the conductor is in our possession, and we shall be pleased to give any information in our power.

The places visited will be Paris, Marseilles, Cannes, Mentone, Genoa, Capri, Vesuvius, Pompeii, Naples, Sorrento, Lakes Como, Lugano, and Maggiore, etc. Such a chance as this does not often occur, especially as Easter will probably be spent in Rome.

* * *

A STANDARD LIGHT.—II.

The first condition to be filled by a standard light is, as we have seen, "that it should be possible to obtain the light everywhere of absolutely equal intensity." Perhaps it will facilitate matters if we enumerate the various standard lights which have been suggested.

1. The standard candle.
2. Violle's electric light unit.
3. The amyl-acetate lamp.
4. Bunsen and Roscoe's normal carbonic oxide light.
5. Coal-gas.
6. Magnesium.
7. Phosphorescent substances.

Taking these in order, we shall see that No. 1 certainly fulfils the first requirement, for the task of obtaining it everywhere is dependent solely upon the possibility of carriage of the same from the place or places of manufacture.

The second light, Violle's, dependent as it is upon the possibility of using electricity, is not to be considered as fulfilling our first essential.

The amyl-acetate lamp can be obtained everywhere, so can Bunsen and Roscoe's light, but coal gas cannot. Our sixth light, magnesinm, can be, so can our last, phosphorescent substances.

The second essential is "that the chemical intensity of the light should be constant." The standard candle can hardly be said to have this property, for a little consideration will show that this is to a great extent dependent on the constant composition of the material burnt, and the more or less perfect combustion of the same. The electric light unit is admittedly one which cannot be depended upon for constancy, and whilst few, if any, of our readers have had any experience of this unit, they will probably know more or less from actual ocular observation that this varies very much even visually, and it is only fair to assume that it does so with respect to its chemical rays.

The amyl-acetate lamp may with care be doubtless depended upon, provided certain conditions as to the purity of the amyl and the height of the flame, and the air supply, etc. be attended to. Carbonic oxide may also be depended upon for this. Coal gas is the next to fall under consideration, and no one who has ever used gas from different companies, and had to pay for it, will ask us to believe for one moment that it has either a constant illuminating power or a constant chemical intensity, for it is a well-recognised fact "that the chemical composition of coal-gas varies, not only with the quality of the coal used, but is also affected by the temperature of the retorts and other conditions of carbonisation."

Magnesium, if certain precautions are taken, may be said to fulfil this second requirement; and the seventh light, phosphorescent substances, certainly does not, as we have already pointed out in our issue for January 1st, 1892, page 6.

The third requirement of a standard light is "that it should emit all the spectrum rays which act on photographic plates, papers, etc.," and we might add as a rider to this, and that the spectrum of the standard light should approach as nearly as possible to that of sunlight or daylight. For, as we expose our plates, and it is principally the testing of plates we are now considering, we hold it to be untenable to put forward as a standard light one which is richer in the rays of one particular region of the spectrum than daylight, for obviously if we could produce a light—and it is, we should say, not beyond the realms of possibility by any means to produce a light—which should contain nothing but red rays, as might be done by the use of a lithium salt, it would give us absolutely no indication of the sensitiveness of the silver salt to daylight, which is, as is well known, composed of orange, yellow, green, blue, and violet rays as well as red.

This is, of course, a *reductio ad absurdum*, but it is only a step further than employing a light rich in yellow rays and poor in blue and violet, such as the standard candle, the amyl-acetate lamp, and coal gas. Arguing from the other side, it seems absurd to use a light rich in violet and blue, and relatively very poor in green and yellow, seeing that these colours are predominant in the solar spectrum, and that we have commercial plates also sensitive to these rays. Therefore Bunsen and Roscoe's light, the electric light, magnesium, and phosphorescent substances will not fulfil this requirement.

Putting these results into tabular form, we shall see how far the at present existing standard lights fulfil all requirements.

	Requirements.		
	A.	B.	C.
1. The candle	Yes	No	No
2. Violle's light	No	No	No
3. Amyl-acetate	Yes	Yes	No
4. Bunsen and Roscoe's	Yes	Yes	No
5. Coal gas	No	No	No
6. Magnesium	Yes	Yes	No
7. Phosphorescent substances ...	Yes	No	No

Therefore we are reluctantly compelled to state that no standard light at present will satisfy us. All fail in the most important point, that of spectrum value.

We hope next week to give a few notes on the above lights which may explain some of the conclusions we have arrived at, but we may at once state that our endeavour has been, and will be, to write in an easily understood style, so that we hope even a tyro may grasp all the points of the subject, and therefore it may happen that some of our conclusions appear a little far-fetched, and not at first sight correct. At the same time we are open to correction, and if we set up some actinometric standards merely to knock them down, we have no infallible panacea of our own to vaunt, but merely a suggestion as to an improved standard which is at least open to criticism.

* * *

Letters to the Editor.

THE TWIN-LENS HAND-CAMERA.

Sir,—I have followed with interest the articles on a Twin-Lens Hand-Camera which have been recently contributed to the columns of your journal, and have prepared a set of full-sized working drawings. It would appear I have done this to no purpose, for as yet no article describing the changing box has appeared, and of course the camera would be useless without one. I shall be pleased to learn that the articles will be completed in the manner indicated, and shall be glad to have an assurance to that effect. It would be of interest too to have a description of the device for setting and starting the diaphragmatic shutter which "Enn Ess" says he employs. Such a description would be interesting, since the release of the shutter of a shifting lens by the mere pressing of a button must be most ingenious. It would not, I think, be above the constructive ability of those of your readers who essay the construction of the camera, for the skill required will be above that of your dovecote carpenter.

In the diagrams that have appeared, the *face* of the mirror, or rather the upper surface of the glass forming the mirror, is shown as the reflecting surface. Is not this an error on the part of your engraver, please?—Apologising for the length of my letter, I am, yours, etc., ROYAL MAIL.

* * * *

THE PHOTOGRAPHIC CONVENTION.

SIR,—The Devon and Cornwall Camera have prepared a set of 118 slides, illustrative of the neighbourhood of Plymouth. This set, which has been entitled "Places to be Visited by the 1893 Convention," is now in circulation, and I should be pleased to have applications from the Secretaries of any Societies who desire to show them at their meetings.

Immediate application would be desirable, to enable me to arrange the route to be followed by the slides.

I may say that March 7th is the first date on which the slides are now available; any London society making application might probably have them on that date.

I venture to ask your insertion of this note, as I feel sure that you are interested in anything that may help forward the next meeting of the Convention.—I am, yours, etc., R. HANSFORD WORTH

(Hon. Sec., D. and C. C. C.; Hon. Loc. Sec., P. C. U. K.).

* * * *

LIGHTNING PHOTOGRAPHS.

SIR,—I suppose some of your many readers know the periodical *Tit-Bits*. The following is out of the "General Information" column of the issue of the 4th inst.:—

"A LIGHTNING PHOTOGRAPH.—What is called a 'curious incident' has, it is stated, occurred at Errol. A telephone wire had been broken or fused by lightning, and on an employé seeking to repair the break, he found on one of the white insulators a picture of the roof of a neighbouring house. The picture had probably been flashed on the porcelain by lightning."

Can anyone explain how this happened? Is not an insulator simply porcelain, or is it sensitive to light? I should very much like to understand how it happened.—Yours, etc.,

KENNETH ANDERSON.

* * * *

SLIDES FOR LOAN.

SIR,—The Cheltenham Amateur Photographic Society has made up a set of one hundred lantern slides for loaning to any other societies who may care to have them, and I shall be obliged if you will make it known that the set is at the service of any secretary on application, the only condition being that carriage shall be paid one way. Thanking you in anticipation, yours, etc.,

The College Pharmacy, Cheltenham. PHILIP THOMAS.

* * * *

POSITION OF THE SUN IN CALCULATING EXPOSURES.

SIR,—The extract from the *Photographers' Record* which you quote under the above heading is both practical and useful, but the writer is in error in supposing that this fact "has escaped the observation of the makers of actinometers."

It is really the old golden rule—expose for your shadows—in another form; and the instructions for my actinometer take it very fully and completely into consideration, by providing that when there are no important shadows in the picture, an actinometer test of the direct sunlight should be made; when, on the other hand, there are shadows in the picture in which detail is required, the sky light only should be tested, the direct sun's rays being kept off the paper. I consider that the plan of judging by the amount of shadow in the picture is better than taking the direction of the sun into consideration. In the case of an open landscape, with no large objects near, the exposure would be the same whether the sun were behind or on one side; in both cases there would be no shadows of sufficient importance to take into consideration.—Yours, etc.,

ALFRED WATKINS.

* * * *

COPYING.

SIR,—Can any of your readers assist me with suggestions on the question of copying photographs in an ordinary camera? My plan is to put the photograph on my mantelpiece, almost parallel to the window, in my study, and set up my camera in front of it between the photograph and the window, but not so directly in front as to obstruct the light, and focus the photograph on the centre of my half-plate ground-glass, as I use a carrier, and copy quarter-plate size for enlarging. Some of my results are so thin they will not print, and others are capital. I fancied at one time the fact of the photograph not being quite parallel to the window made a difference; then, again, that did not seem to be the cause. Is it important that the photograph to be copied should have a dark background? Does the glossiness of the print reflect the light, and so affect the result? I am in doubt, and shall be thankful for enlightenment.

Since writing the above I have remembered seeing some difficulty expressed in a letter in a recent issue in obtaining brilliant pictures of lantern-slides on the sheet. Let me say I have found an evenly-lighted picture slide with carefully trimmed wick and lamp well supplied with oil clearer and more useful for enlarging or for showing than wicks turned high or a more powerful light; for instance, I took a much better enlargement with two wicks in my lantern (the centre one having been turned down into the fountain accidentally and the usual exposure given) than ever I have taken with all three burning.—Yours, etc., J. J. W. LIVETT.

* * * *

INSTANTANEOUS SHUTTERS.

SIR,—Several photographic papers have lately thrown their columns open to the discussion of hand-camera shutters. Some people prefer shutters working directly in front of plate, others those working between the lenses or in front of them. I should like to say a word or two about shutters, especially about the roller blind ones, which are regulated by means of a slit. Have you ever used an Anschutz or Loman's Reflex?

I have imagined a way to test actual speed of shutter—a simple though practical one, I may add—to compare the roller-blind shutter with the ordinary one. This is how I did proceed. Having got two rapid rectilinear lenses of identical focus and rapidity, I affixed them to my two hand-cameras, one of which has a blind shutter, the other Newman's patent. I obtained a moving subject (my fox terrier) and got some one to make him jump over a stick placed at a pretty good height. Then, as he was taking his leap, I pressed the two india-rubber balls of shutters with one hand, thus giving an equally sharp pressure to both. On developing I found that my doggie was nearer to the ground on one plate, *i.e.*, the one exposed with the roller-blind shutter, than with the other one. I repeated the operation a second time, but having accelerated the speed of the roller-blind in order that the subject should be at equal distances from the ground on both plates. I also developed the plates in the same dish together. What do you think happened? The subject was well at equal distances from ground on both plates, but the plate exposed with the blind shutter was under-exposed, whilst the other plate was sooner over-exposed. (Note that both plates were Ilford red label.) The result, therefore, was, and would be for any other subject, that with two shutters—one a roller-blind, another an ordinary one regulated at the same speed and under equal conditions throughout—the ordinary shutter—that is to say, the one working in front of lens or between them—would give a much fuller exposure than the other. Besides, is this not quite natural? In a roller-blind shutter every part of the plate is exposed, one after the other, as with the other sort the whole plate is exposed all at once. What do you and some of your readers think?—Yours, etc., C. P.

[We shall be glad to hear our readers on this subject, and will answer it ourselves in a week or two.—EDITOR.]

* * * *

AN ANACHRONISM.

SIR,—I had hoped the letter published in your issue of the 10th inst. might have been my final contribution to this discussion. As, however, Mr. de. W. Birch has addressed several questions to me, I am compelled to ask for space to reply.

A photograph of "Miss Violet Vanbrugh as Anne Bullen" is not an anachronism, but a photograph labelled simply "Annie Bullen," would, in my opinion, be so. But even in the latter case were the photography carefully designed as suggested, the anachronism would not, of course, be so intolerably evident.

Photographic copies of historic pictures are not anachronistic, as in this case both the painting and the photography are quite independent of the period in which the event delineated happened.

The "Old Masters" in permitting anachronisms to appear in their work, only displayed the same disregard for exactness in detail which characterised the age in which they lived. But they are no more to be quoted as precedents to justify the same cause now, than the varied spelling employed by writers of the same period would be held to justify loose orthography in the present.

Anachronism on the stage is hardly relevant, but to suppose that because we have improved of late years we must have reached finality would be unreasonable.

I consider it a simple fact that the production (not *re*production) of "historic" pictures by photography involves anachronism. Whether or not any artistic success could live this down is another matter, and remains to be proved.

Your able and very fair leader (page 89) seems to cover the entire subject, and might furnish a common ground upon which we could all be in general, if not complete, agreement.

My difficulty, personally, is that "the troublesome matter to overcome, and the inevitable feeling that we know it is not what it claims to represent, but . . . a masquerade" (*vide* leader), would, I fear, with me be *too* "troublesome" to permit anything like proper appreciation of the picture.—I am, etc., J. W. HUGGINS.

Our Lantern Screen

A MONTHLY SUPPLEMENT OF

"The Amateur Photographer."

No. 5.   FEBRUARY 24, 1893.

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Delicate

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OUR LANTERN SCREEN.

A Monthly Supplement to the "Amateur Photographer."

No. 5. FEBRUARY 24, 1893.

Our Dissolving Views.

Spring is fast approaching with its lighter evenings, and the lantern will be replaced on the shelf, and lantern entertainments will become a thing of the past. Practical outdoor work will be the chief aim, and negative making with a secondary thought for their use as possible means to make slides from.

* * *

Personally we see no reason why lantern entertainments should not be a feature all the year round, but that curious legislator "custom" decrees otherwise.

* * *

Why cannot a lantern entertainment be given in the summer? It is true that the light is much stronger then in the evenings and it might be assumed that this would be troublesome, but, provided the screen itself is shaded from a strong light, summer evening light will not trouble anyone much.

* * *

Someone may suggest that it will be hot work. Why? Cannot windows and doors be opened? and we should say that the heat from a limelight lantern would only be felt by the lanternist.

* * *

We have in past years seen that it has been customary to lay aside the camera during the winter and go in for lantern work. But within the last year or two the camera has been used more and more in the winter, and the users have been astonished at the artistic results to be thus obtained. Why therefore should not the lantern be used at a time when hitherto it has been considered unsuitable or not quite possible?

* * *

We hear that this season the lantern trade has been especially brisk, and there is evidence that the lantern will be increasingly used for instruction. We understand that it is to be introduced for evening schools for class instruction on a very large scale shortly.

* * *

LANTERN SLIDES BY REDUCTION.

The operation of making lantern slides by reduction is by no means a difficult one, and yet in one point it is certainly often bungled over by the novice. This is not from want of technical skill, but want of artistic perception, and the same fault is apparent with printing.

In the case of printing the tyro may and often does think that as he has a certain amount of subject on his negative it is a pity not to print it all, because it means that he has wasted a certain portion of the plate by taking unnecessary things. On the other hand, he may look at it from another point of view, and consider what a lot of paper he may save by not printing from the whole of his negative.

In reducing from larger negatives for lantern slides we have a great power of modifying the results. Too often a slide-maker has either a fixed-focus reducing camera, or else it never strikes him that it would be possible to improve his subject pictorially by not reducing quite so much; that is, by reducing only the central portion or some part of the negative.

Our own practice is to focus the whole of the larger negative on to the $3\frac{1}{4}$ square of the ground glass, and then choosing a mask of suitable opening temporarily affix this to the ground surface, and then try, by shifting the relative positions of negative and ground glass, to see whether it be not possible to improve matters. It may, of course, be said that this entails considerable trouble and expenditure of time. Perfectly true, but if an improved result is the consequence it can hardly be said to be a waste of time or labour.

In our competitions we often see slides thrown on the screen, of which either the centre or one little bit would make a picture, but as the operator has not seen this, he spoils a good thing by reducing the whole of the negative.

Another and almost identical improvement is in the shape of masks. Some slide-makers buy a box of one particular shape mask, and whether that be suitable or not it goes on every slide. The majority of slides sent into our competitions are those which will give the very largest amount of subject, when in many cases a great improvement could be effected by masking more.

Whatever you do, carefully consider before sending in slides or prints for exhibition or competition, whether you cannot improve the pictorial merits by masking or unsparing use of the knife. One of the most effective Thames studies we have ever seen was a 5 in. strip taken from a 15 by 12 plate.

* * *

Phot. Soc. of Great Britain.—Technical meeting February 28th, at 50, Great Russell Street—"Panoramic Photography." Col. Stewart will open the discussion, and show his "Panoram." Other panoramic apparatus will be on view. To be followed by the adjourned general meeting.

Croydon Micro.—February 17th, lantern evening. Mr. J. A Carter, B.A., read a paper describing a fortnight's walking tour last July through the Bernese Oberland. Starting from Lucerne he visited, amongst other places, Andermatt, Meiringen, Grindelwald, Interlaken, and finished up at Berne. A large collection of views, taken en route with a hand-camera, were passed through the lantern by Mr. W. Low-Sarjeant.

Photographic Forgery.—Colour photography has made such advances of late that it has provided the scientific forger with a new means of counterfeiting bank notes, bonds, and cheques. Although the Bank of England still relies upon the watermark and the rough edges as the greatest security against forgery, the notes of many banks are now printed on plain paper, and the protection is constituted partly by the design and principally by the colours used. Messrs. Perkins, Bacon, and Co. are sending to the Chicago Exhibition a number of excellent specimens of Cape Government and joint-stock bank notes, which are tinted in such a manner with colours which defy the camera as to make their reproduction by photo-lithography impossible. The engraving is of a highly artistic character, and by a special process hardened steel plates are obtained the exact fac-similes of the original design. The system permits of the combination of various styles of engraving, whether portraits, landscapes, or the intricate "white line" machine work, in one plate, which is so hard that an enormous number of impressions can be taken from it before it is worn out. Any number of fac-similes can be made without the aid of electrotypes. A plate from which a million stamps have been printed does not show signs of appreciable wear, and the collection contains many items to interest philatelists and the public generally.

Lantern Slide Making.

At the meeting of the Putney Photographic Society on the 6th inst. the above formed the subject of a lecture and demonstration by the Paget Prize Plate Company, of Watford. Mr. H. Faulkner occupied the chair.

Mr. Woodbury, who represented the Company, said that he understood that making lantern slides by contact had already been demonstrated before the members earlier in the season; he would, therefore, confine his remarks to the manipulation of the new printing-out plates, and to making slides by reduction in the camera with such apparatus as every photographer already had in his possession, or could readily make for himself; he would also show the method of working the printing-out opals recently introduced by the Paget Company, which was very similar to that required for their printing-out lantern plates. He said that the treatment of the plates and opals was essentially a daylight process, in many respects similar to that in use for gelatino-chloride or albumenised papers. The first point to which he called attention was that the difference between the coated and uncoated sides was not great; it should therefore be remembered that the plates and opals were placed in the boxes face to face, with a piece of chemically pure tissue paper between; if by chance they should become disarranged, the glass side could generally be distinguished by small streaks or patches of the emulsion accidentally left on, and if these should not be sufficiently obvious the surfaces might be breathed upon slightly, when the glass side would immediately show by the condensation of the breath, the coated side remaining unaltered.

The printing was generally done by daylight, the plates and opals being placed in the frames and afterwards examined in a subdued light. In this connection, he said, it would be obvious that the examination of the rigid glass must necessarily differ from that of paper, which could be bent back and replaced without difficulty. As regards the lantern plates there was no difficulty, as the emulsion was so transparent that density would be readily judged from the back when one half of the frame was opened in the usual manner. The opals being too opaque for the image to show through, it was necessary to lift them off the negatives so as to be able to look at their front surfaces, and special means for replacing them in correct register with ease and certainty had to be resorted to. Mr. Woodbury said this could be done in three ways: First, the negative was placed in an ordinary printing frame, and wedged firmly in position. The opal was put in contact on the top, and care taken that it was placed firmly against one side and one end of the same, of which a note should be made; with ordinary care the opal could be taken up and replaced correctly without difficulty. Secondly, a piece of cardboard twice the width, and of a length equal to a plate one size large than the negative to be printed from, is folded across the middle, and apertures of the proper size for the negative and opal cut out opposite each other; the negative is gummed in one of these openings, the opal in the other, and then folded together face to face, and placed in a suitable printing frame with plain glass in front. For a half-plate negative the cardboard should be 3 in. by 8½ in., which, when folded, would measure 6½ in. by 8½ in., allowing about an inch margin all round the negative, and would fit in a whole-plate printing frame. The description looks somewhat formidable on paper, but the whole operation was very easily performed, and answered its purpose admirably. It should, of course, be remembered that the same cardboard frame may be used repeatedly. Lantern slide binding strips are conveniently used for holding the negative and opal in place. The third method consisted in the use of a special printing frame, designed by Messrs. Paget, and which they will shortly place on the market at a very moderate cost. Each frame is arranged to take two sizes of negatives; for instance, half and whole, or quarter and half plates, etc. The negative is securely clamped in the lower portion by turning a cam, which is locked in any position by means of a screw; the opal is similarly held in the upper portion or lid of the frame; the lower portion carries four brass studs fitting accurately into corresponding sockets in the lid. On being lowered on to the frame, the studs enter the sockets, and the two parts are thus always held in proper register with each other. By the use of this frame the last trace of difficulty disappears, and the opals and plates may be examined as readily as paper prints. The opals and plates are printed somewhat more deeply than will ultimately be required. A little practical experience will soon enable the operator to judge the correct density. The same rules apply as to silver prints generally. Thin negatives should be printed in a weak light, hard ones in sunlight. Mr. Woodbury stated that good results could be obtained on their plates from negatives with a lack of pluck which would place them out of court with most of the ordinary rapid brands. It is almost unnecessary to add that this is a great desideratum for those who have developed their negatives with a view to obtaining soft and delicate prints, or who may have failed to get the necessary density when using some of the many new developers. Such weak negatives have generally been disappointing for lantern work, and a plate producing slides which will compare favourably with the prints taken from the same negative, will be hailed with delight by many good workers, perhaps more particularly among the growing ranks of those who devote themselves to stereoscopic photography. The size of stereoscopic negatives is convenient for making slides by contact. Each negative also gives two chances against spots, scratches, and other defects, as a slide may be made either from the right or left half. The prints composing the stereogram should, however, be soft, and of as delicate a gradation as possible. This requirement has hitherto to some extent militated against the successful use of stereo negatives for lantern work, as lantern plates generally give the best results with rather plucky negatives inclined to be hard when printed in silver. When printed out, the opals and plates are ready for toning. Mr. Woodbury said that any of the usual baths will be found to answer. The Company issue the following formulæ:—

Combined Toning and Fixing Bath.—No. 1 Stock.—Hyposulphite of soda 20 oz., alum 5 oz., sulphate of soda (not sulphite) 14 oz., water to 1 gallon. Dissolve the hypo and alum each in about one quart of hot water, mix, and then add sodium sulphite which has already been dissolved, making up to one gallon with remainder of water. The mixture should be left for some hours to allow precipitate to settle, when the clear solution may be poured off or filtered and is then ready for use. It will keep indefinitely. *No. 2 Stock.*—Chloride of gold 15 gr., acetate of lead 64 gr., distilled water 8 oz. Dissolve the acetate of lead in the water and add the gold. A heavy precipitate will form, which should be shaken up when any is to be poured out; it re-dissolves when added to No. 1 Stock. For use: mix 8 oz. of No. 1 with 1 oz. of No. 2. When this bath is used the plates and opals should not be washed *before* toning. *Separate Toning Bath.*—Sulpho-cyanide of ammonium 30 gr., chloride of gold 2½ gr., water 16 oz. The plates and opals must be very thoroughly washed for at least fifteen minutes in running water to ensure even toning.

For deeply printed images, Mr. Woodbury recommended the combined, and for correctly or slightly under-printed pictures the separate bath. He also pointed out that in the combined bath toning proceeded very evenly, and could be stopped at any stage; care being taken if the plate had not been in the bath at least fifteen minutes that fixation should be completed in a separate plain hypo bath. Unless very carefully washed, prints would tone unevenly in the separate bath up to a certain point, and it might be found necessary to carry the toning somewhat further than intended; for warm tones, therefore, the combined bath would be preferable, and the separate for the colder shades He then proceeded to print some lantern plates and opals by means of the Platinotype Co.'s oxy-magnesium lamp, the operation being fully performed in a few seconds; he then toned some of each in the combined and separate baths, the manipulation throughout being of a simple nature, and such as every photographer is accustomed to when toning silver prints. The results were highly successful, and they, as well as a number of finished lantern plates and opals with glossy and matt surfaces, were handed round and greatly admired by the members. Mr. Woodbury then proceeded to make a lantern slide by reduction on the Paget Co.'s rapid lantern plate. The negative was half-plate size and of average density, and of a good colour, without yellow tinge. It was placed in a suitable frame placed at right angles to an ordinary camera, which could be moved longitudinally on a board fitted with guides. The image was focussed by means of a couple of candles placed behind the negative. The lantern plate was put into the dark slide and a ground-glass placed about two inches behind the negative, in order to diffuse the light; the lens worked at *f*/10, and 12 inches of magnesium ribbon was burned at a distance of about 6 inches from the ground-glass, being moved about as evenly as possible during burning. The exposure proved to have been correct, and the slide was in every way successful. Elaborate apparatus was therefore unnecessary, the chief point being that the light from the burning ribbon should be screened so as not to enter directly into the lens. Questions were asked during the lecture and demonstration, and were answered very fully and clearly by Mr. Woodbury, and altogether the new plates and opals made a most favourable impression on all those present.

Mr. Woodbury distributed sample packets of the rapid and printing-out lantern plates and opals, and they will certainly be tried with much interest by all who witnessed the demonstration.

* * *

Kensington and Bayswater.—A meeting was held on the 20th inst., Mr. F. A. Hahn presiding. Mr. J. A. Hodges gave a lecture on "Some Printing Processes," which was followed by an interesting discussion, in which most of the members took part.

Monthly Lantern Slide Competition.

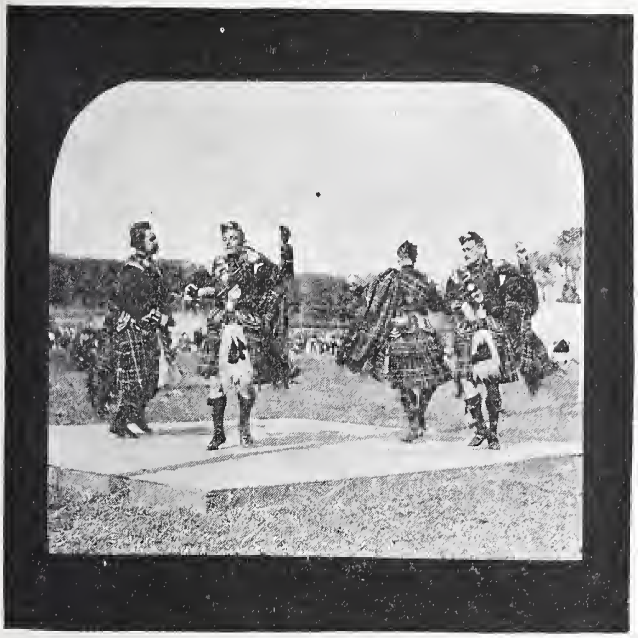
CLASS I.

*** Red. = reduction ; con. = contact.

Many of the slides sent in were wanting in artistic merit, and others rather poor instantaneous studies.

The Silver Medal slides were, for instantaneous work, very remarkable and really good examples of slide-making, being a pleasing colour, and with good transparency in the shadows, and without harsh high lights, and there was no hesitation in awarding them the Silver Medal.

As with many prints of instantaneous work, some of the slides lacked detail in the shadows, and probably this could have been improved, pre-supposing that there was faint detail in the negatives, by giving fairly long exposures, getting weak thin images, and then intensifying.



No. 1.] "Highland Dancing." [*J. D. Lysaght.*

SILVER MEDAL.

Lysaght, J. D. (Cork). — (1) "Highland Dancing;" (2) "100 Yards Flat Race." Con.; Brook's collodio-bromide emulsion; pyro and ammonia. Both excellent.

Newson, H. (Norfolk).—(1) "Near Fakenham Town;" (2) "Taking a Rest." Con.; Ilford; rodinal. No. 2 decidedly inferior.

Hankins, G. (Clapton). — (1) "On Hastings Beach;" (2) "Ditto." Con.; Edward's special; pyro ammonia. Exquisitely soft slides.

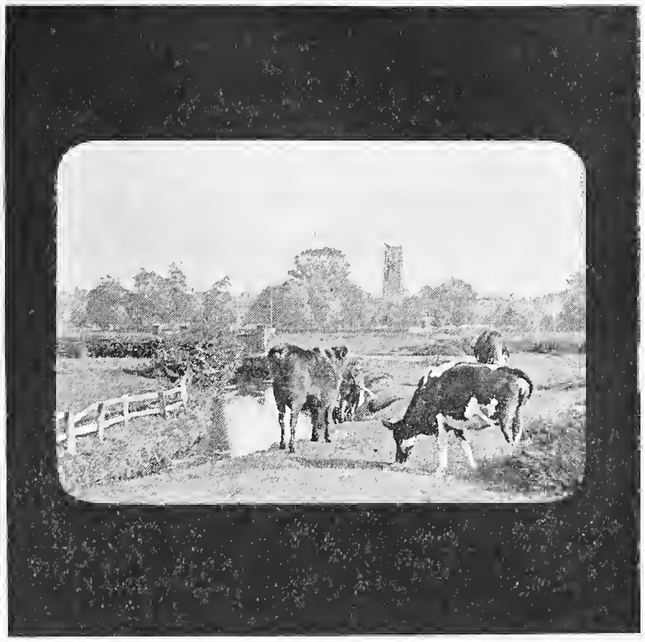
Beeder, W. T. (Scarborough).—(1) "Corpus Christi Procession, Brussels;" (2) "Group in Procession." Con.; Paget S.; quinol. Far too harsh.

Hawes, W. A. (Aberdeen).—(1) "Football at Aberdeen;" (2) "On the Beach." Con.; Thomas; pyro ammonia. Both want skies, and horizon in No. 2 too central.

Gear, J. H. (London). — (1) "A Haven of Rest;" (2) "The Lowing Herd." Red.; Imperial special; pyro and ammonia. Both slides weak and poor, especially No. 1.

Pollock, James (Belfast).—(1) "A Stormy Day;" (2) "Running for the Flag Boat." Red.; Ilford; pyro and ammonia. Slightly over-developed.

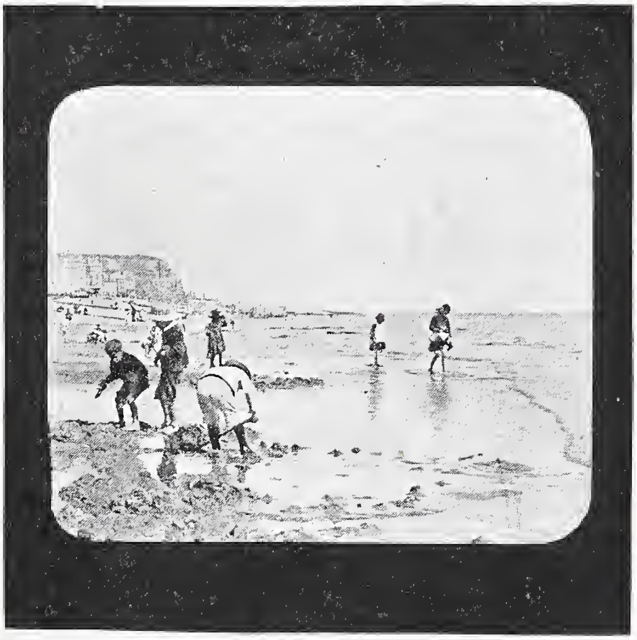
Glazebrook, T. (Ashton-under-Lyne).—(1) "A Squally Forenoon;" (2) "A Breezy Afternoon." Con.; Thomas' formula; hydro. 1 Far too thin and weak, and handicaps No. 2, which is a very good slide.



N 2.] "Near Fakenham Town." [*H. Newson.*

BRONZE MEDAL.

Young, D. K. (New York).—(1) "American Fall, Niagara;" (2) "Negro Group." Red.; Eastman; hydroquinone. Slightly heavy in shadows.



No. 3.] "On Hastings Beach." [*G. Hankins.*

CERTIFICATE.

Male, E. W. (Ryde).—(1) "Bournemouth Beach;" (2) "A Yacht at Ryde Regatta." Con.; Ilford special; hydroquinone. Good slides technically, but not artistic.

Harding, M. (Stourbridge).—(1) "Mark.' (2) "Feeding Time." Con.; Ilford special; hydroquinone. No. 2 is the better, most decidedly; the straight lines in No. 1 are not pleasing.

POTTER, J. D. (Worthing).—(1) "Tower Bridge." (2) "Hoar Frost." Con.; Ilford; hydroquinone. No. 2 wants a tint in sky to throw up frost. No. 1 is good.

HAWKINS, E. (Sidcup).—(1) "Riverside Children;" (2) "Ploughing." Con.; Paget; pyro. Two very good slides, and highly commended.

GOTTLIEB, A. W. (Shrewsbury).—(I) "Leaving Port." (2) "Out in the Ocean." Con.; Ilford; hydroquinone. No. 2 far inferior to No. 1, in which the sky line is too central.

SNOWBALL, G. S. (Newcastle).—(1) "Sheep Grazing;" (2) "Mare and Foal." Con.; Edward's; quinol. No. 1 is good, but No. 2 too heavy, and an inartistic, unpleasant-looking subject.

CLASS II.

NEILL D. (Aintree).—(1) "Ida and Judy; (2) "Ditto." Red. and con.; England; hydroquinone. Very harsh, and can hardly be said to be two different subjects.

GODFREY, E. S. (Birmingham).—(1 and 2) "Political Meeting." Con.; Ilford; Amidol. Good shots, but not artistic.

DE MORGAN, S. (Ryde).—(1) "Sandown on Regatta Day;" (2) "Exercising Race Horses at Ashey, I.W." Con.; England's chloride; hydroquinone. No. 1 far too harsh; No. 2 is a good slide.

LAIDLER, T. S. (Felling-on-Tyne).—(1) "Happy Childhood;" (2) "Contentment." Con.; Edwards; pyro meta. No. 2 a very poor, thin slide, which heavily handicaps No. 1.

SOUTHELL, Mrs. (Liscard).—(1) "Jury Street, Warwick;" (2) "Portsmouth." Red.; Mawson; hydroquinone. Very thin, weak, and under-developed prints; technically the worst in the competition.

WEIR, W. (Glasgow).—(1) "Paddle Steamer;" (2) "Group of Highland Rams." Con.; Mawson; hydroquinone. Technically good, artistically weak.

DART, W. B. (Torrington).—(1) "Paris Steamboat;" (2) "At the Brookside." Con.; Thomas'; rodinal. No. 1 wants clouds, and No. 2 so black we could hardly see what it was on the screen.

BROOK, T. M. (Manchester).—(1) "A Polite Boatman;" (2) "Fishing Boats off Bridlington." Con.; Thomas'; amidol. Very poor slides.

JOY, R. C. (Ormskirk).—(1) "Snap Shot of a Bathing Scene in the Black Forest;" (2) "Ditto." Con.; Paget's printing-out. These might be good subjects, but the colour is so unpleasantly hot as to spoil any chance they ever had.

NORTHWOOD, W. (Wordsley)—(1) "Niggers;" (2) "Cricket on the Sands." Con.; Ilford special; hydroquinone. No. 1 too heavy; No. 2 fair.

GETHEN, C. (Hereford).—(1) "The Wye (June) Regatta;" (2) "The Wye (December) Skating." Con.; Thomas'; Ilford; hydroquinone. No. 2 is a very good slide, though a little black in the figures. The judges placed these slides in the second class; we should have put them in Class I.

Two slides were received from Mr. Wm. Middleton which were disqualified as not being instantaneous work. Of these, "Near Seven Arches" is a perfect study of a snow scene, and very fine artistically.

Some Problems in Photographic Arithmetic, with Suggestions for their Simplification.*

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IN the study of photography, as in many branches of science, the subject of arithmetical calculations forms a most important part, and a careful study of the mathematical problems involved will not only enable us to use our apparatus with greater intelligence, and hence to produce better technical work, but will also, I believe, lay a truer foundation for real artistic excellence.

What a simple thing in appearance is a photographic lens! But, simple as it looks, few of us can conceive the intricate calculations and patient investigations necessary before it was capable of giving us that wonderful power of representing the beauties of nature.

It is not my intention, however, to attempt to explain these calculations, or, indeed, to say anything concerning the *construction* of the lens—that is the province of the optician. We photographers are mostly concerned with its use (or *abuse*, as some of our artistic friends remind us); we will, therefore, consider some of the many problems arising in practical work.

Covering Power of Lenses.—One of the chief requirements of a lens is that it shall fully illuminate the sensitive plate. There may be occasions, of course, when we are satisfied to waste a large plate on a small picture, but, in ordinary work, we endeavour to utilise the plate to the very corners.

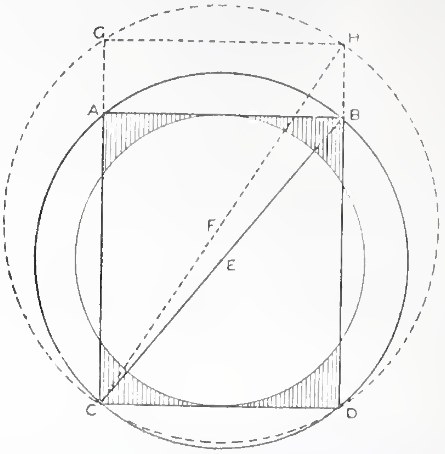

FIG. 1.

In fig. 1 the rectangle A B C D represents a sensitive plate, and it is very evident that a lens with a covering power equal to the length of the plate only, will not be satisfactory, as it will have no action on the corners, as represented by the shaded portions, and our print must consequently be trimmed to a very small size.

To completely cover the plate, the diameter of the circle of illumination must not be less than the longest line that can be drawn on the rectangle, viz., the diagonal B C.

The ordinary geometrical method of finding the length of the diagonal of a rectangular figure is to add together the squares of two adjacent sides, and to extract the square root of the product.

Thus taking A B C D to represent a 12 by 10 plate, the diagonal is $\sqrt{12^2 + 10^2} = 15{\cdot}62$ in. Hence a lens with a circle of illumination of less than 15·62 in. will not cover the corners of a 12 by 10 plate.

But this circle will be found to be insufficient when the lens is moved from the centre. If the front of the camera be raised so that the lens is opposite the point F, instead of the centre E, it is equivalent to lengthening the plate by *twice* the distance between E and F, and we now require of the lens a covering power equal to C D G H.

If the distance between E and F be one-eighth of the length of the plate (and this will be found to be approximately the proportion allowed in most cameras for rise or fall), we have practically added one-fourth to the length of the plate.

Taking A B C D, as before, to represent a 12 by 10 plate, G C will be equal to 15 in., and the circle of illumination required will be represented by the outer circle in the diagram whose diagonal is H C.

The length of this line is $\sqrt{15^2 + 10^2}$ or 17·9 in. Thus a lens to be efficient for a 12 by 10 plate must cover a circle of 17·9 in.

Table showing the circle of illumination required for various plates.

Column A gives the diameter of the circle when the lens is central; column B gives the circle when the plate is used vertically and the front is raised one-eighth.

Plate.	Covering Power Required.	
	A	B
4¼ by 3¼	5·35	6·22
5 ,, 4	6·4	7·4
6½ ,, 4¾	8·05	9·4
8½ ,, 6½	10·66	12·45
10 ,, 8	12·8	14·8
12 ,, 10	15·62	17·9
15 ,, 12	19·2	22·26

The following is suggested as a simple method of arriving at these results within a sufficient degree of accuracy for all practical purposes.

To find the numbers in column A, add to the length of the plate one-third of the width. To find the numbers in column B add to the length of the plate three-fifths of the width.

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* Notes of a lecture delivered before the South London Photographic Society by William Rice.

By this method the diagonal of a 10 by 8 plate will be found to be $10\frac{3}{8} + = 12\frac{3}{8}$.

The diameter of the larger circle when front is raised =

$$10 + (\tfrac{3}{5} \text{ of } 8) = 14\tfrac{4}{5}.$$

It is seen, then, that a lens to be thoroughly efficient under all conditions must be capable of covering a circle the diameter of which is equal to the length, plus three-fifths of the width, of the plate on which it is used.

Angle of View.—We have considered one quality of a lens, its covering power with reference to the plate; but there is another covering power to be studied, viz., the power to "cover," or include a greater or less field of view. The former we can express in actual measurement of inches, the latter can only be calculated by means of the angle formed at the optical centre of the lens by its extreme rays of light. This angle is called the "angle of view," and is measured by means of the focus of the lens and the diameter of the circle of illumination.

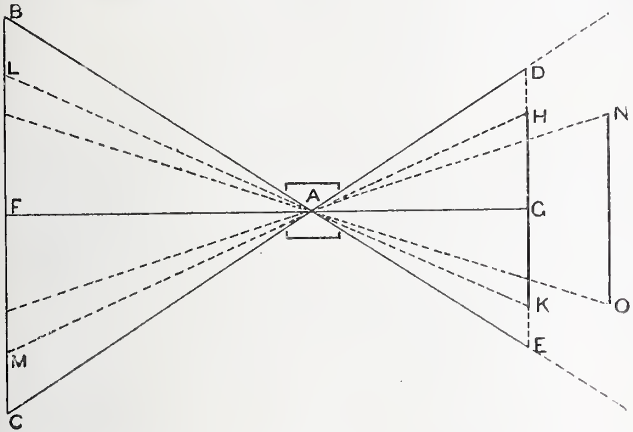


FIG. 2.

In fig. 2, A represents the lens, and the points B and C the extreme limits of the field of view. The "angle of view" is, therefore, represented in the camera by the angle D A E.

Picture Angle.—It is obvious this angle of view will coincide with the picture angle only when the full circle of illumination is utilised. In other words, the complete angle of view must be represented by a circular picture.

But as ordinary photographic plates are made rectangular, it follows that we must sacrifice a part of the plate, as in fig 3, or a part of the angle of view (or covering power), as in fig. 4.

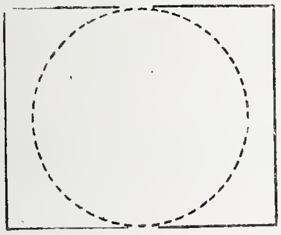


FIG. 3.

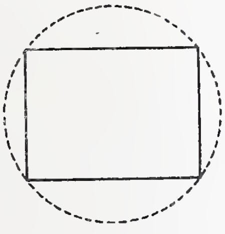


FIG. 4.

It is important to bear in mind this distinction between angle of view and picture angle. The former, with the same lens and aperture, is constant; the latter depends on the proportion of the field of view included in the picture.

Thus if D E (in fig. 2) represent the focal plane, and H K the plate, there must of necessity be a loss of illumination, the extreme rays between D and H and K and E falling outside the picture. The picture angle in this case is H A K. If a smaller plate be used, the picture angle will be proportionately reduced.

This angle can also be reduced on the *same* plate by removing the focal plane further from the lens. This is, of course, done when using a lens of a longer equivalent focus. In fig. 2, N O represents the same plate as H K thus removed. The picture angle is now N A O, which is considerably smaller than the angle H A K.

The same effect will take place with the *same* lens, when a very near object is focussed. But the extension in this case does not alter the angle of view. This is still represented by D A E, and if we can use a plate large enough in this plane, we shall get the same picture as in the plane D E, but on a larger scale.

This explains how it is that the covering power of a lens is so greatly increased when focussing a close object, and embodies the principles on which the practice of "enlargement" is based. Thus a lens which works at a focus of 4 in. for a distant view, and covers, say, a 7 in. circle only, if focussed on an object as near as $4\frac{1}{2}$ in. will give a circular picture of 56 in. diameter. The only essential is that we place the plate (or paper) in the focal plane, which, in this case, would be removed to a distance of 36 in. from the lens.

The rule for giving the relative position of copy, lens, and plate in enlarging may be thus stated:—

To find extension of camera, *i.e.*, the distance the focal plane is removed from the lens: "*Multiply the focal length of the lens by the number of times of enlargement required plus one.*"

To find distance of lens from copy: "*Divide the number given above by the number of times of enlargement.*"

Thus if we enlarge a photograph five diameters with a 4 in. lens, the extension required will be 4 in. × (5 + 1), *i.e.*, 24 in., and the distance of lens from copy will be $\frac{24}{5}$ or $4\frac{4}{5}$ in.

For *reducing* we employ the same rule, but reverse the position of copy and negative. Thus in reducing to one-fifth, the extension required is $4\frac{4}{5}$ in., while the distance of lens from copy must be 24 in.

Before proceeding to the subject of measurement of angles, I may note that the "picture angle" may be reduced to a slight extent by moving the axis of the lens horizontally from the centre of the plate. This fact was noted by Mr. Everitt in a paper recently read before the London and Provincial Photographic Association, and printed in the *British Journal* of February 10th, but I do not think that his elaborate perspective drawings are at all necessary to prove this. The following diagram (fig. 5) will be quite sufficient.

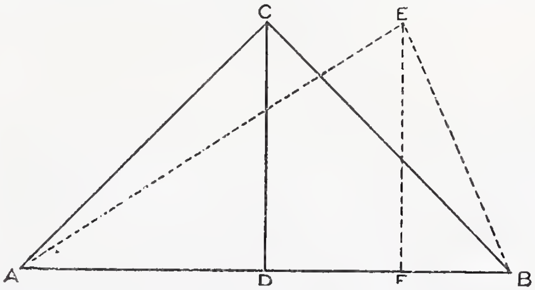


FIG. 5.

Let A B represent the plate, and C the position of lens opposite D, the centre. The picture angle will in this case be A C B. Now remove the lens to E opposite the point F, and the picture angle will be A E B, which can easily be ascertained by measurement to be smaller than the angle A C B.

Those who prefer a geometrical proof will find a clue to this in Euclid, Book III., Prop. 21.

Measurement of Angles.—To measure an angle with mathematical instruments at hand is an easy matter. Thus a photographer who wishes to know his picture angle will simply draw a straight line the length of his plate, erect a perpendicular at the centre the same length as the equivalent focus of his lens, draw straight lines from the extremity of this perpendicular to the extremities of the base line, and mark off the included angle on his protractor.

The mathematical rule for finding this angle is rather complicated, requiring as it does a knowledge of decimal fractions, and a little practice in the use of tables of tangents.

The tables, however, given by Mr. Haddon for this purpose in the "British Journal Almanack" will simplify this calculation considerably.

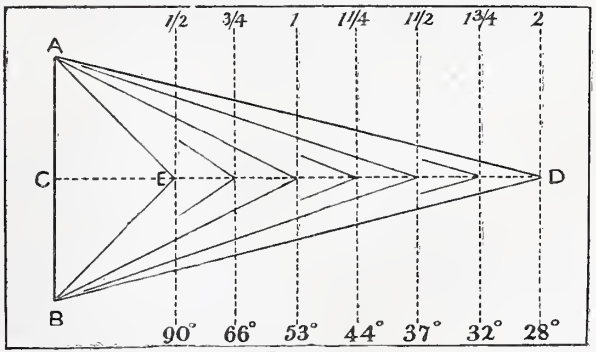


FIG. 6.

The rule is this: Divide half the length of the plate by the focus of the lens, look out in the tables the nearest natural tangent to the quotient, and the arc opposite multiplied by 2 will give the angle.

Thus if we wish to calculate what angle a 14 in. lens will give on a 12 by 10 plate, we divide 6 (half length of plate) by 14, which gives us ·4285, and opposite the nearest number to this in the tangent tables we find the arc 23° 12′; this multiplied by 2 gives us 46° 24′, the required angle.

The above diagram (fig. 6) gives the angles, calculated by this method for various proportions between focus and length of plate.

AB represents the plate, the upper figures the proportions, the lower figures the angles. Being given in proportions only, and not in actual lengths, any focus on any plate can easily be calculated from this table sufficiently exact for all practical purposes.

These angles can also be found by the following formula, which not only does away with the necessity of tangent tables, but requires only the most elementary knowledge of arithmetic.

If **P** represent length of plate and **F** focus of lens,

$$\text{Angle} = \frac{63\,P}{F + \frac{P}{5}}$$

Stated verbally, the rule is this:—"*Multiply length of plate by 63, and divide the product by the length of focus added to one-fifth of the length of plate.*"

What is the angle given by a 12 in. lens on a 10 in. plate?

$$10 \times 63 = 630$$

$$12 + \frac{10}{5} = 14$$

$$\frac{630}{14} = 45$$

Number of degrees in angle = 45

The focus of lens, or the length of plate, can be found by the same formula.

Note.—This formula must not be used for the calculation of angles greater than 90°. It is not mathematically exact, but within the range of proportions that are likely to be found in photographic practice, the error does not exceed 1°.

Stops or Diaphragms.—The two principal methods employed for marking stops are:—(1) The *Focal ratio* method, and (2) The *Exposure-ratio* method recommended by the Photographic Society of Great Britain, and commonly known as the U.S. or Uniform System.

The plan adopted by the first method is to mark each stop with a number representing the proportion between its diameter and the equivalent focus of the lens, taking a diameter of one-fourth focus as the first of the series, and arranging the size of each succeeding stop, so that it gives half the illumination of the preceding—hence requiring *double* the exposure.

As the amount of light passing through any two stops is proportionate to their areas, and the areas are proportionate to the *squares* of their diameters, it follows that a set of stops to express both aperture ratio and relative exposure must be marked by the square roots of a series of numbers which are themselves in the ratio of the exposures required. This will explain the diaphragm numbers in this system, which to the beginner appear so unmeaning.

In the U. S. method of marking, the numbers used express the ratios between the *areas* of the apertures, and not between their diameters. Hence a stop marked 16 requires double the exposure of one marked 8, and 32 double of one marked 16, and so on. By this method the focal ratio is not expressed.

The following are the numbers usually employed in the two systems, arranged to show their corresponding value:—

Focal-ratio numbers	4	5·6	8	11	16	22·6	32	45	64
Exposure-ratio numbers	1	2	4	8	16	32	64	128	256

Both systems, it will be observed, start from the ordinary portrait lens aperture, expressed in the one case by the focal value $f/4$, in the other by 1 as the first of a series It will be noticed that 16 in each system has the same exposure value, and a knowledge of this fact will always enable us to arrange the two series in their proper relation.

The relative exposures, then, are expressed in the U. S. method by the ratio between the stop numbers themselves; in the focal method by the ratio between the *squares* of the numbers. If we wish to construct a stop of any other proportional intensity, say, one with which we shall require 1½ times the exposure of any given stop, its numbering by the U. S. method is a very simple calculation. Thus a stop requiring 1½ times the exposure of 8 will be marked by a number 1½ times 8, that is 12.

The number 12, however, does not express the ratio the *diameter* of the stop bears to that marked 8, but its *area*. The diameter can only be found by the focal-ratio system in this way.

To the *square* of 8 add its half, and then find the square root of the sum.

$$8^2 = 64$$

$$64 + \frac{64}{2} = 96.$$

$$\sqrt{96} = 9{\cdot}79$$

The number 9·79, then, will be the proper marking for a stop midway between $f/8$ and $f/11$, and the diameter can be found by dividing the equivalent focus of the lens by this number.

If we have a stop marked with some unusual focal value, say $f/15$, to ascertain its relative intensity, we simply compare the *square* of this number with the *square* of a focal number with which we are familiar.

If the exposure for a certain subject with stop $f/11$ is found to be 6 sec., the exposure for $f/15$ will be

$$\frac{6\text{ sec.} \times 15^2}{11^2} = \frac{6 \times 225}{121} = 11{\cdot}15\text{ sec.}$$

Calculations connected with the Optical Lantern.—The rule already given for enlarging with the ordinary camera applies also to the various calculations connected with the optical lantern, and by this method the lanternist can ascertain all the particulars he requires as to size of disc, distance of screen from lantern, etc. The slide will in this case represent the copy, the screen the negative, and distance of screen from lens the extension of the camera. A more convenient rule, however, is given for these special calculations. The rule, which was, I believe, first published in the *Optical Magic Lantern Journal*, is as follows:—

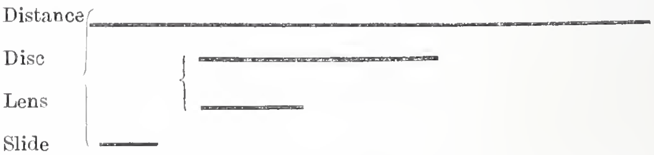
If A = focus of objective, expressed in inches,
,, B = diameter of slide, ,, ,, ,,
,, C = ,, ,, disc, ,, ,, feet,
,, D = distance of lantern from screen in feet,

Then $A = \frac{D \times B}{C}$; $C = \frac{D \times B}{A}$; $D = \frac{C \times A}{B}$, and I may add, although this formula is not given, $B = \frac{A \times C}{D}$

These formulæ are very simple: the only difficulty is in committing them to memory.

The following considerations will, I think, be of assistance in this:—

We have to deal with four measurements, which we will first place in order of length:



We now arrange them in pairs, as indicated by the brackets; the *longest and shortest* measurements to form one pair; the other consisting of the two intermediate lengths. This association of the longest with the shortest is the key to the memorizing of the rule—the "long and the short of it," in fact.

The rule may be stated thus:—

"*Any pair of terms multiplied together and divided by one term of the other pair will give the remaining term of that pair.*" Thus:—

$$\frac{\text{Distance} \times \text{slide}}{\text{Disc}} = \text{lens.}$$

$$\frac{\text{Distance} \times \text{slide}}{\text{Lens}} = \text{disc.}$$

$$\frac{\text{Disc} \times \text{lens}}{\text{Slide}} = \text{distance.}$$

$$\frac{\text{Disc} \times \text{lens}}{\text{Distance}} = \text{slide.}$$

The only burdens to the memory by this rule are (1) to remember how to pair the terms, and (2) to remember that when any one term is required the divisor of the fraction is its associated term.

A Few Test Questions in Photographic Calculations, etc.

1.—What circle of illumination is required to cover a 5 by 4 plate when the lens is used centrally?

2.—A lens is used centrally on a half-plate, and on a 5 by 4 with the front raised 1 in. Compare the circles of illumination required when both plates are vertical.

3.—What angle will be included on a 15 by 12 plate by a lens working at 13 in. equivalent focus?

4.—How much more covering power will be required of a lens when used on a plate 10 in. square than when used on one measuring 10 by 8?

5.—Distinguish between "angle of vision," "angle of view," and "picture angle."

6.—Taking the angle of vision to be 45 deg., what focus lens must be used on a 12 by 10 plate to make the picture angle coincide?

7.—How is the picture angle modified by sliding the front of a camera horizontally?

8.—How may the picture angle be decreased with the same lens and on the same plate?

9.—How are the focal values of lens stops determined?

10.—What is the principle of the U.S. system of marking?

11.—The diameter of a stop marked *f*/8 measures 1¼ in. What will be its focal value if used with a lens of 15 in. equivalent focus?

12.—It is required to construct a stop which is 1½ times as rapid as *f*/8. How should it be marked?

13.—If the exposure with stop *f*/8 is found to be 3 sec., what exposure will be required with a stop *f*/17?

14.—Compare the exposures required for a ⅚ in. stop with a 10 in. lens, and a 6/7 in. with a 12 in. lens.

15.—In the "Dallmeyer" system of marking, the equivalent U.S. number may be found by multiplying by 10 and dividing by 16. Find the *focal* value of a stop marked 50.

16.—State the rule which determines the extension of camera in enlarging or reducing.

17.—In enlarging four diameters with a lens 4 in. focus, what must be the distance of lens from copy?

18.—What is the greatest amplification that can be given with a lens 8 in. focus and an extension of 48 in.?

19.—In making a lantern slide by reduction from a 10 by 8 negative (slide to be masked 2½ in. in length), what will be the relative positions of lens, negative, and lantern plate when a 9 in. lens is employed?

20.—An optical lantern, with a 7 in. focus lens, is required to project a 10 ft. picture; at what distance must it be placed from the screen, the slide being masked to 2½ in.?

21.—Determine the size of the mask of a lantern slide which is enlarged to 10 ft. by a 6 in. focus lens at a distance of 22 ft.

Mounting Lantern Slides.

By James Ross.

Why is it that while everything else in connection with photography has been advancing and improving, almost revolutionising, the mounting of lantern slides is carried on to-day exactly as it was some thirty years ago, when the method of mounting each slide in a separate wooden frame was discarded; that is, discarded so far as photographic slides were concerned, for I believe that the finer variety of hand-painted sets are still framed? The present form of mounting, when skilfully done, and before the paste begins to give way, certainly looks well, and the mounter who makes a trade of it is able to do it skilfully; but the amateur who only mounts a few now and then, rarely makes a neat job, and is anything but an amateur in the true sense of the word, and would rather make two than mount one any day.

I believe that the disagreeabilities incident to the present method of mounting, rather than any difficulties in the way of making good slides, deter many from turning their attention to that most delightful branch of photographic work, and my object in this article is to urge the adoption, not of a new method, but of one that has been again and again proposed but rarely adopted, one that will, when we get used to it, look as well as the present method, be much more convenient in various ways, and at the same time as simple as putting a letter into an envelope. It is one also that only needs to be generally seen to be universally adopted, and I have a strong hope that it will soon be so, as several of the British dealers in lantern material have at length seen their way to make and supply the mounts or wrappers, a step likely soon to be followed by those on this side. But we need not wait for that, as the cutting of what I would fain term the modern mount is such a simple matter that anyone can do it for himself.

The material and tools necessary for the making of the mounts is some thinnish, tough paper—white writing, or "manila," will do—a pair of scissors and a slide cover. Paper of white or light shade is best, as the slides so covered are easily seen in dim light, and suitable for writing on. The paper is first cut into pieces of 4 5-8ths by 3 7-8ths inches, and then the clear or opening is cut of any desired size or shape. This is probably most easily done by folding the paper across the middle twice, first in the direction of its length and then of its breadth. The slide cover is employed as a straight-edge, laid on the folded corner so as to permit two straight pencil lines to be drawn, making, with the two folded edges, a square, either upright or horizontal, of just half the size of the opening desired. Two straight cuts along the lines, stopping of course at the point where they join, will give, when the paper is unfolded, the desired opening; or if rounded corners, cushion shape, be preferred, they are easily made by making the cut continuous, simply turning the scissors round the corner, cutting the while. Before unfolding the paper, it is well to snip off the four open corners, diagonally across from the folded corner, so that when the flaps are folded over the joints will have a mitred appearance.

On opening the paper thus cut—and two or three dozen might have been made in the time it has taken to explain it—a compound mat and binder will be found ready for use. It is only necessary to paste it, lay the slide and its cover, without anything between, in the centre, and fold over and rub down the flaps. A single trial will show how easy it is to both cut the compound binder and apply it, and after one or two trials, with a tithe of the trouble, to mount as neatly and more conveniently than in the ordinary way.

I have mounted slides in this way for years, and they were admired by all who saw them; but fashions, like facts, are stubborn things, and ill to ding. But according to the wise man, there is a time for all things, and perhaps the time for the combined mount has at last arrived.—*The Beacon.*

Apparatus.

DIAMIDOPHENOL.

Messrs. Arthur Schwarz and Co., of Dashwood House, 9, New Broad Street, E.C., have sent us samples of this developer, which is in chemical composition identical with amidol. The formula recommended for making the developer is—For developing gelatine dry plates prepare: *Solution A*—Water, 500 parts; sulphite of soda (crystals), 100 to 120 parts; diamidophenol, 20 parts. *Solution B*—Water, 100 parts; carbonate of soda (crystals), 25 parts; bromide of potassium, 10 parts. For use dilute A with 6 to 8 parts of water, and a small quantity of B (about 5 to 10 drops to 3 oz. of the ready developing solution).

DIAMIDOPHENOL CARTRIDGES.

This firm also send us samples of these very convenient little articles, which merely require breaking into about 3½ oz. of water to form a strong concentrated developer, which has to be diluted with from 4 to 6 parts of water for ordinary work. In case of over-exposure, it is recommended to add a few drops of a ten per cent. solution of bromide of potassium, and the under-exposure a few drops of a ten per cent. solution of potash. These will be invaluable for tourists.

TONING AND FIXING CARTRIDGES.

Messrs. Schwarz also send us samples of this novelty which will be of service to those who desire to make the combined toning and fixing bath with as little trouble as possible. The contents of a cartridge are dissolved in 4 oz. of distilled water, and form a faintly yellowish solution, which, in our hands, has given very fine results. For toning lantern slides and opals it is also useful, but we have found that for lantern slides on bromide plates a more concentrated solution is an advantage, and therefore we have used it double strength.

THE ZOKA HAND-CAMERA.

Jonathan Fallowfield, of 146, Charing Cross Road, W.C., has taken up the wholesale agency for the above hand-camera, and now holds a good stock.

BUTCHER'S UNIQUE LAMP.

In our notice of this lamp last week we stated the price to be 2s., whereas it should have been 3s. 6d., post free 4s.

The A B C of the Lantern.

Cardioscope, The.—An apparatus devised by Czermak to show the pulsation of the heart. It is hardly likely that any of our readers are likely to attempt to show this, but for reference Wright's "Optical Projection," pp. 230-241, may be consulted.

Case, or Cabinet.—This serves a twofold purpose. Its primary use is to safely contain the lantern and accessory apparatus, when not in use, and during transit; it also serves as a support or stand for the lantern during an exhibition. It should be made of light but strong wood dovetailed together, and not nailed. It is generally so constructed that one side lets entirely down, leaving the interior readily accessible to the operator. The inside of the case should be fitted up in compartments or divisions, so that each separate piece of apparatus may have its proper place therein. There should be at least one drawer provided, in which such *et-ceteras* as screw-eyes, string, small pieces of compo pipe for connecting short lengths of india-rubber tube, can be stowed. The lantern should be clamped or wedged in its own compartment, and there should be nothing packed loose in the box. The top of the box should be provided with a board, hinged at one end and capable of being raised or lowered, so that the lantern, when firmly screwed into position, may be tilted to any desired angle. This is an almost indispensable adjunct to the lantern case when demonstrating in public, for, unless access to a gallery can be obtained, it is generally necessary to considerably tilt the lantern in order to get the disc on the middle of the screen. Fig. 10 shows a cabinet, devised by Mr. Chadwick, just described. It sometimes happens that, even when the lantern is *in situ* in the cabinet, it is not high enough for comfortable working; provision is made for this by raising the sides and top, which slide in grooves, to the height required. The "Askew" lantern box is extremely convenient, especially for lecturers who occasionally do their own operating. The sides of the case fall down and form a table for the slides, the top is fitted with a tilting table and clamp adjustment, whilst the back of the case forms a very convenient desk upon which to place the manuscript.

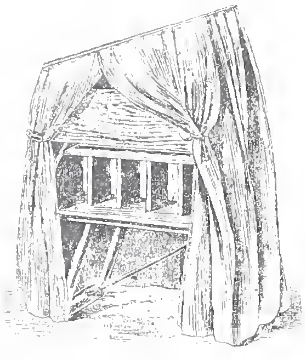
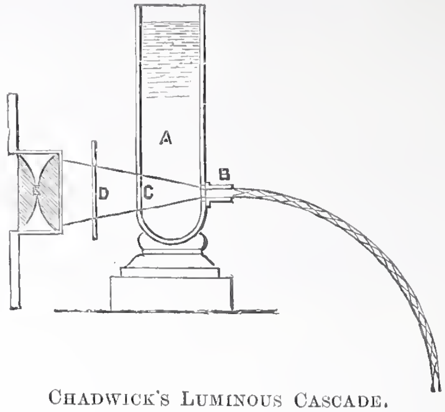


Fig. 10.

Cascade.—This very interesting experiment in "total reflection" may be performed in the following manner. A U-shaped vessel of the form shown at A (fig. 11) is placed in front of the lantern, the whole being painted with opaque black, except where the rays from the condenser pass in. The orifice B should be plugged with a cork into which a glass tube has been fitted. The light having been adjusted, water is supplied from the vessel C so that it issues in a steady stream at the outlet B, the column of water appearing to be transformed to one of liquid fire. The rationale of this experiment is as follows—the parallel beam of light from the lantern strikes the stream of falling water by which it is reflected from side to side, forming what has been not inaptly termed the "luminous cascade."



CHADWICK'S LUMINOUS CASCADE.
Fig. 11.

Chemical Tank.—This is used for the purpose of exhibiting experiments of a chemical nature, and also certain physical phenomena, by means of the lantern. In its ordinary form it is a trough-shaped vessel with glass sides (fig. 12) of such dimensions that it can be easily placed in the slide stage, which, for the proper performance of experiments of the class referred to, should be what is called an "open stage" (*q v.*). For another class of experiments showing the effect of "surface tension" upon fluids, a square tank of larger dimensions with glass sides is required. Another form of tank specially suitable for chemical experiments is constructed of two plates of glass, in the four corners of which holes are bored to admit screws with clamping nuts. A piece of vulcanised tubing is bent into a semicircle as shown in the diagram, the screws are then tightened until the rubber is sufficiently compressed to form a water-tight trough. The advantage of this form of tank is that it is easily taken to pieces and cleaned after use, a very important point when chemical reactions are to be demonstrated. An ordinary test tube may (in the absence of one of the above described tanks) be made to serve the purpose, but the reaction will necessarily be projected on a much smaller scale.

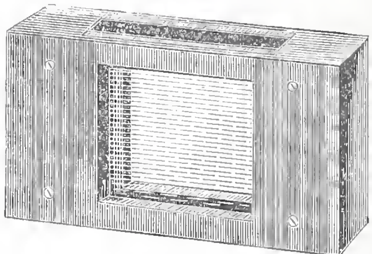


Fig. 12.

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Messrs. E. and T. Marlow will continue to carry on the business of photographic apparatus manufacturers of Marlow's, Limited, at 28 and 30, Constitution Hill, and have made extensive alterations, and put in new stock both in photographic and microscopic goods.

Blackheath Camera Club Exhibition.—Mr. Geo. Davison being unable to act as one of the judges at the above exhibition to be held on 3rd and 4th March, the Rev. F. C. Lambert has kindly consented to take his place, working in conjunction with Messrs. Cembrano and Pringle. Entries will close on the 28th inst.

Photographic Surveying with the Ordinary Camera, Sometimes Called "Photogrammetry."

By Henry A. Reed.

At the risk of presenting information already possessed by the reader, I offer by request the following synopsis of photographic surveying with the camera ordinarily used for landscapes.

It should be an interesting subject to landscape photographers when it is observed that if the sensitive plate is vertical and the optic axis horizontal, a map of the country embraced in the photographs taken under these conditions can readily be made from the photographs.

The ordinary field camera may be used if furnished on its upper surface with two levels at right angles to each other for levelling the camera before exposure, and with two "horizon points" so attached to the middle points of the vertical edges of the inner frame as to project slightly in front of the exposed plate, and which mark on the negative by their obscuration of the light the extremities of a horizontal line that can thereby be afterwards drawn upon either the negative or the print taken from it. A pocket compass, or one attached to the camera, is also needed to determine the direction of the optic axis during the exposure.

A photograph thus taken is a plane perspective with its horizon marked and its point of sight, or principal point, located at a distance from the plane, or face, of the picture equal to the principal focal distance of the lens—the usual focal distance for landscapes.

It is evident from the foregoing that lines joining the principal point and different points of the picture correspond to the visual rays joining the photographer's station with corresponding points of the landscape, and that the angles included or limited by like lines in the two cases are equal.

A condition, mainly of importance in the measurement of heights, is that in what precedes, the optic axis and "horizon points" are presumed to be in the same horizontal plane, and the right line joining the latter is the normal horizon. If the optic axis is raised or lowered by raising or lowering the lens, the horizon of the picture will ascend or descend an equal distance, therefore a line parallel to the normal horizon and at a corresponding distance above or below it, which may be measured on a scale attached to the objective slide, will be the true horizon.

The simplest method of using photographs for the construction of a map, or plan, is that of intersections, as in the use of the plane table. Given a photograph taken under the foregoing conditions: Lay it upon a smooth flat surface and join the images of the "horizon points" by a fine penciled line. This is the normal horizon of the picture. Mark with numbers, 1, 2, 3, etc., the different points of the photograph to be represented on the map, and connect these points by perpendiculars with the horizon; the points of meeting with the latter are called the projections of 1, 2, 3, etc., and may be designated 1′, 2′, 2′, etc. Draw a right line perpendicular to the horizon at its middle point, and on it set off from the horizon the actual principal focal distance; the outer extremity is the point of sight, which call O. Now if O were joined to 1′, 2′, 3′, etc., by right lines the included angles would be the true horizontal angles pertaining to corresponding points, the same as if measured by a transit; but these angles are not needed in the method under consideration.

Suppose, for the same landscape, two exposures are made from different stations, S and S′, at a known distance apart called the "base." On a sheet of paper assume a N and S line on the paper, and to a convenient scale, say, 1 in. on the paper to 100 yards on the ground, draw a right line to represent the "base;" its extremities will represent S and S′ as well as the points of sight O and O′, by which they may be designated. Then from O draw a right line in length equal to the principal focal distance, in a direction corresponding to the compass bearing of the optic axis as determined at S; and at its outer extremity draw a right line perpendicular to it to represent the projected horizon of the photograph; transfer the points 1′, 2′, 3′, etc., from the horizon of the photograph to this projected horizon, using the angular point as the middle point. Perform a like operation at O′ with the photograph taken from S′; then right lines drawn from O and O′ through corresponding points of the two projected horizons will intersect in the required points of the map.

If an exposure is made at a third station embracing the same features, it is readily seen that a check may be had upon the accuracy of the work.

Once the plan is thus obtained, the distances to points are known from the map, and a simple calculation gives the heights, which may also be obtained mechanically by a process that the space prescribed for this article prevents explaining.

To obtain these results, marking of the photographs may also be avoided; so that, when the work is done, there are, besides a good map of the country, the photographs themselves to supply any information which otherwise only an actual observer of the ground could give.—*Photographic Times.*

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THE PHOTOGRAPHERS' BENEVOLENT ASSOCIATION.

The annual general meeting was held on Monday, February 20th, in the rooms of the Photographic Society of Great Britain, Mr. J. Traill Taylor in the chair.

The minutes of the previous annual general meeting were read and confirmed, after which the President briefly addressed the members. He said that he regretted that he had been unable to attend the committee meetings, but that his attendance had really been unnecessary owing to the fact that the late Mr. William Bedford, as chairman of committee, had been such an efficient head. He had intended to refuse re-election as President in favour of the late Mr. William Bedford, and had already intimated his intention before Mr. Bedford's death. That gentleman's loss was such a blow to the Society as could hardly be expressed, but he (Mr. Taylor) was still obliged to retire from the presidency, owing to the fact that his medical adviser had ordered him to withdraw as far as possible from all evening engagements, and he had no doubt that they would easily find another president who would fill the place as well as, or better than he had done. (Dissent.)

The report of the committee, of which a copy is appended, was taken as read.

Mr. J. Spiller, the treasurer, in presenting his report, said that the association was to be congratulated on an unusually good balance-sheet for two reasons; firstly, because the disbursements had been unusually small, and secondly, because a windfall of fifty guineas had come to the association through Dr. Lindsay Johnson. The list of subscribers of £1 or upwards was better than for many years past, and the only unsatisfactory thing about the balance-sheet was that the small subscriptions under £1 still reached but a very small total. In moving that the balance-sheet be adopted, he wished to include special thanks to the Photographic Society of Great Britain, and to Mr. Frederick Hollyer, for their substantial contributions to the funds. Mr. F. W. Hindley inquired whether the total of small items had been diminished, owing to the fact that the subscribers had increased their subscriptions and come into the list of £1 and upwards. The Secretary replied that this had only occurred in one instance. The balance-sheet was unanimously adopted.

Mr. T. E. Freshwater expressed deep regret at the retirement of Mr. J. Traill Taylor, who had been for many years a most valuable President. The assocation wzs greatly indebted to him, not only for presiding at the annual meetings, but also for very considerable help that he had given in other ways. He begged to nominate Mr. George Mason for the position of President. Mr. George Mason was unanimously elected.

The following were elected members of the Committee, R. Child Bayley, F. H. Berry, Robert Beckett, R. P. Drage, T. E. Freshwater, F. W. Hindley, H. R. Hume, P. G. Hunt, T. C. Hepworth, Alexander Mackie, E. W. Parfitt, and W. J. Tabrum. As no new nominations had been received for Treasurer or Trustees, these remain as before, namely, Trustees, Captain W. de W. Abney, C.B., R.E., and Mr. W. S. Bird. Treasurer, Mr. John Spiller, F.I.C. Messrs. J. Bedding, H. G. Rapson, J. Guardia, and Burnett were elected Auditors.

Mr. J. Traill Taylor proposed a vote of thanks to Mr. J. Spiller for the hard work that he had done in connection with the Association, and especially for the excellent balance-sheet which he had laid before that meeting. This was carried by acclamation and duly acknowledged by Mr. Spiller. Mr. J. Traill Taylor also proposed a vote of thanks to Mr. H. Snowden Ward, for his services as Hon. Secretary. Mr. Ward briefly replied. Mr. Spiller proposed a vote of thanks to the Auditors and to the photographic press who had been good and constant friends of the Association.

The action of the Committee in electing Dr. Lindsay Johnson and Mr. Frederick Hollyer Honorary Life Governors was then unanimously confirmed, and a vote of thanks to the Chairman, proposed by Mr. F. W. Hindley, and carried by acclamation, terminated the proceedings.

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Glasgow High School.—The society met on the 10th inst., Mr. Munro Somerville in the chair. There was a large attendance of members and others. The subject of the evening was a lantern exhibition by Mr. Weir, entitled "The Highlands of Scotland." The lecturer showed a series of excellent slides, and gave a very instructive and humorous reading.

Exhibitions.

SOCIETY.	ENTRIES CLOSE.	OPENS.	CLOSES.	ADDRESS OF SECRETARY.
Manchester Amateur Photo. Society	—	Feb. 21	Feb. 25	Randolph Gilmore, 1B, Cooper St., Manchester.
Blackheath Camera Club ...	Slides, Feb. 28; Prints, Mar. 1	Mar. 3	Mar. 4	C. W. Piper, 46, Shooter's Hill Road (slides); Thos. B. Earle, The Art Club, Bennett Park, Blackheath (prints).
Fillebrook Atheneum ...	Feb. 20	Mar. 1	Mar 2	J. W. Spurgeon, 1, Drayton Villas. Leytonstone.
National Photographic Exhibition, Crystal Palace ...	—	April 10	April 29	Mr. Chas. W. Hastings. Mr. S. G. B. Wollaston.
Philadelphia (U.S.A.) Phot Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.
National Sportsmans' Exhibition (Photo. Apparatus Section).	—	April 24	May 6	Royal Aquarium, Westminster.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B.

WOOLWICH POLYTECHNIC PHOTOGRAPHIC SOCIETY.

THE members of this society held their first exhibition on 16th, 17th, and 18th inst., and the judges were Messrs. Cembrano, Pringle, and Dresser, but Mr. Cembrano was unable to act.

The awards were as follows:—Prints (members only)—bronze medal, C. G. King; bronze medal, Geo. J. Gill; diploma, W. Dawes. Lantern slides (members only)—silver medal, W. Dawes; bronze medal, C. G. King. Prints (open to any amateur photographer)—silver medal, C. Court Cole; bronze medal, T. M. Brownrigg. Prints (open to any amateur photographer who has never received an award in open competition)—silver medal, Chas. Moss; bronze medal, Viscount Maitland; bronze medal, Ed. Hawkins; diploma, Ernest R. Ashton. Lantern slides (best set of six; open to any amateur photographer)—silver medal, W. Taverner; bronze medal, H. E. Farmer; diploma, E. Hawkins. Set of four prints taken with camera held in the hand (open to any amateur photographer)—silver medal, E. Hawkins; bronze medal, Chas. Job; diploma, A. Brooker; gold medal for best picture in exhibition, Chas. Moss.

In the members' class, the first noticeable picture is No. 4 by Viscount Maitland, a group of about eighty Scots Guards in undress uniform, which is perfect technically. No. 14, "Before the Rain," by V. Taylor, is a well-balanced, pleasing study; and the bronze medal picture, "Sunset after Storm," by C. G. King, is a really fine piece of work. In Nos. 28—31, Mr. Geo. J. Gill has some work which certainly proves him to have been an admirer if not a pupil of Mr. Dresser, the President of the club, and his picture, No. 28, "Such a tide as moving seems asleep," takes a bronze medal. Mr. W. Dawes takes a diploma for No. 39, Shanklin, the well-known "Crab Inn" view; and in No. 41, "Reed's," we have again the influence of the President apparent. The members' lantern slides are a little disappointing, though Mr. Dawes' work has promise of something better in the future. In the open class one of the most striking portraits is No. 53, "A Portrait," by J. A. Young, which, however, owes a great deal of merit to the judicious use of the brush. Mr. Chamberlain has gone in for pinhole work; "Benhall Farm" is decidedly pleasing, whilst a flower of the night-blooming cereus is exquisitely rendered. Mrs. S. Francis Clarke has some of her well-known work, and also a new picture which she calls "A Pastoral," which, although figure study, yet combines landscape with figure, and may be said to be a good illustration of the lines,

> "And since my voice can match your tuneful reed,
> Come, let us sit beneath the grateful shade
> Which hazels intermixed with elms have made."

And we think this picture might well have been awarded the bronze medal rather than Mr. T. M. Brownrigg's "Sunrise in Winter," which we do not like. Court Cole takes a silver for "Below Iffley Mill," the best of a very good series. Mr. Brownrigg has some good work, and Mr. Hawkins in this class makes a good show. In section 4 Chas. Moss takes silver medal for a very fine sunset scene, and for the same picture takes the gold medal for the best picture in the exhibition. Of this competitor we shall hear considerably more if his work improves as it has done lately. Mr. E. R. Ashton has some fine Eastern studies, which are awarded a diploma, the same set taking our silver medal in "Holidays with the Camera." Viscount Maitland takes a bronze medal for "A Glimpse of the Lake," which is, in our opinion, equalled by "On the Arun River." In 88, "Bullrushes," he becomes quite Dresseresque. Mr. Hawkins takes a bronze for "Off to the Rescue," a good and clever piece of work. Other noticeable work in the class is that of H. Spencer, C. H. Oakden, W. Howell, J. O. Grant, and W. E. Harman. In the open lantern-slides class W. Taverner's flower studies are awarded a silver, and are surpassed, in our opinion, by the bronze set of Mr. Farmer, some very fine interiors. For hand-camera prints Mr. Hawkins takes the silver with four nice little pictures, the other sets being handicapped by want of artistic merit in one or more prints.

The club have been lucky enough to obtain pictures from Messrs. Pringle, Davison, Seyton Scott, E. Calland, etc., and the President, Mr. Dresser, shows no less than 110 of his well-known prints. A fine show of prints has been made by the Canadian and Pacific Railway too. Butcher and Sons show photographic apparatus of all kinds, and a special optical and enlarging lantern is well worth notice. The Paget Prize Plate Co. have stands of their now well-known printing-out opals and lantern-slides.

DURHAM CITY CAMERA CLUB.

The Durham City Camera Club, though only established about a year ago, has already a large membership, and some remarkably fine work has been accomplished by many of its members. An exhibition of members' work was opened in the Shakespeare Hall, North Road, Durham, on Tuesday morning, and remained open throughout the day. The President of the Club (the Rev. H. E. Fox, M.A.), himself an ardent and successful devotee of the camera, performed the opening ceremony. In Class I., for the best set of six prints of general out-door work, five inches by four inches and under, Mr. J. Morson, jun., 47, North Road, Durham, secured the premier honours. The set for which he obtained the bronze medal included photographs of prize sheep and poultry. In the same class Mr. F. Cuff, 45, Old Elvet, Durham, was awarded a certificate. Mr. Cluff's work included three landscapes, a view of Elvet Bridge, another of the Count's House, and a study in hoar frost, and three snap-shots of golf players. Mr. R. H. Blythe, 16, North Bailey, Durham, in the first class was awarded "hon. mention." Class II. attracted a large entry. It was devoted to general out-door work, and exhibitors presented three direct prints, half-plate and above. Miss C. Fawcett, 18, North Bailey, was awarded a bronze medal. She sent four sets, each of the prints being of first-class merit. The prize-winning set included views of Lake Lowerie, the Matterhorn, and the Castle of Heidelburg. Mr. Edgar Meynell, of Old Elvet, also secured a bronze medal in this class. His set was made up of lake district views—"Rydal Water," and "On Windermere"—and a pretty tree study, entitled "Birches." Councillor Ernest White, in Class II., was awarded a certificate for a set containing a print of High Force, the north door of the cathedral, and the cathedral from the banks. Mr. J. N. Hunter, whose work was adjudged to be equal to that presented by Mr. White, was also given a certificate. Class III. was devoted to portraiture, and some excellent specimens were entered. Mr. T. Harker, of Neville's Cross, Durham, carried off premier honours. A certificate was awarded to Mr. J. Hunter, of 30, Crossgate, Durham, and Miss C. Fawcett obtained "hon. mention." In Class IV. for enlargements, Mr. E. White secured a bronze medal, and Mr. J. Morson a certificate. The class restricted to members' lantern slides attracted a large entry, and altogether the collection of slides was a remarkably fine one. Premier honours were carried off by the Rev. R. J. Pearce, 7, South Bailey, Durham. He sent views of Millgill Force, Askrigg; the College, Durham; and Patinscale, Keswick. Mr. J. Morson was also successful in this class, he securing a certificate. His work included Continental views and a picture of a fortune-teller taken on the racecourse at the last miners' demonstration. As might be expected, the open class evoked a large entry. There were thirty sets of six in competition, and among these were included some of the best work produced in this department. It ought to be mentioned that the Mayor of Durham (Councillor W. Sanderson) gave a silver and bronze medal for distribution in this class. Mr. J. H. Gear secured the silver medal. These were remarkably fine views. They were "Fishing in Preserved Waters," "Study of Cattle," "Helping Mother," "Handel's Organ," "Come here, you Rascal," and "Going to Sea." The bronze medal was taken by Mr. George E. Thompson, Liverpool, and the certificate went to Mr. E. Cowan, Newcastle. A special bronze medal for flower studies was won by Mr. William Taverner, of London. The celebrated marine picture, entitled "Break, break, break at the foot of thy crags, O sea," was exhibited by Messrs. Elliott and Son, Barnet. The judges were Mr. Lyd. Sawyer and Mr. M. Laws, photographers, of Newcastle, and Mr. Edgar G. Lees, of Cullercoates, Secretary of the Photographic Society, Newcastle. An idea of the quality of the work sent in to the exhibition may be gathered from the following report of the judges:—"The exhibits sent in to this exhibition show a high order of merit, and in Class II. the judges gave an extra bronze medal and certificate owing to the excellence of the work shown."

HOLBORN CAMERA CLUB EXHIBITION.

The fourth annual exhibition of the Holborn Camera Club was held on Saturday last at Anderton's Hotel, Fleet Street, London. The exhibition was a small one, but proved a success in every way. Mr. A. J. Golding took first place in all the four classes. Two lantern shows were given during the evening, the slides shown being portraits of the officers of the club, the slides sent in by members for competition in one of the classes, and a splendid set by Mr. John A. Hodges, of scenery in North Wales. The annual cinderella dance was held on Monday last.

Societies' Notes.

The newly-formed Chichester Photographic Society held its first general meeting last Thursday at the Chichester Institute. The following gentlemen were elected for the various positions, and have kindly consented to serve:—Patron, Sir Robert Raper, Kt.; President, George Woodbridge, Esq, J.P.; Vice-Presidents, Rev. A. H. Glennie, Dr. E. H. Buckell; Hon. Treasurer, Mr. T. Vinall; Hon. Secretary, Mr. E. A. Long; Committee, Messrs. E. Charge, F. O. Collins, R. Dawtrey, G. N. Fulcher, G. Turnbull.

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The Cheltenham Amateur Photographic Society announce in our correspondence columns that they have a set of slides for loan to societies.

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Sleaford.—A photographic and general scientific society has been started here, with the Earl of Winchilsea as President; Vice-Presidents: C. Sharpe, Esq., J.P., and C. F. Bedford, Esq.; Committee: Messrs. N. E. Snow, H. Tipple, and W. H. Spite.; Hon. Sec., Mr. W. Spyvee. The first general meeting was held on Monday 13th inst., when there was a good attendance of members and friends to witness an exhibition of slides, chiefly the work of members of the Society. Mr. Spite ably manipulated his biunial lantern, and the slides shown—more especially those representing local views—evoked a considerable amount of enthusiasm. The exhibition revealed some excellent work done by local amateurs, and this, together with the general success attending the first meeting, augurs well for the future of the Society. A number of slides kindly lent by the Editor of the Amateur Photographer were also greatly appreciated.

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The following are the classes and conditions of the Forfarshire International Exhibition:—Class 1, Amateurs confined to Forfarshire, any subject, any printing process, irrespective of size; Class 2, Amateurs, open class, landscape and marine, irrespective of size or process; Class 3, Amateur, genre and portrait; Class 4, Professional, portraits, irrespective of size; Class 5, Professional, genre; Class 6, Open class, enlargements, untouched; Class 7, Professional landscape, with or without figures; Class 8, For ladies only (any subject); Class 9, Open class, lantern slides, set of six; Class 10, Medalled class (champion), no restriction in number of pictures. *Note.*—One gold medal will be awarded to the best picture in the exhibition; also a silver and a bronze medal will be at the disposal of the judges for any special photographic work, any subject or process. *Conditions.*—The first Forfarshire exhibition will be held in the Reid Hall, Forfar, on May 4th, 5th, and 6th, 1893. Gold, silver, and bronze medals will be awarded in Class 10; in all other classes silver and bronze medals will be awarded. No exhibitor can be awarded more than one medal in each class. Entrance fee of 2s. 6d. for four frames, and for each extra frame a further fee of 6d. will be charged. Lantern slides (sets of six), entrance fee, 1s. per set, and not more than three sets allowed to compete in the class; trade manufacturers of lantern slides are barred from competition, but the committee will accept slides for exhibition only. Pictures that have been awarded prize medals at any open competitions can only compete in Class 10. Foreign exhibits: Pictures from foreign exhibitors to be forwarded to W. J. Anckorn, Arbroath, N.B., unmounted, and these will be mounted and framed at the expense of the exhibition committee; no charge for wall space or fee will be made, and exhibits to arrive *not later* than April 10th. All British exhibits must be mounted and framed, and all frames must be rectangular. The committee reserve the power to reject the whole or portion of any exhibit. All exhibits must be sent to the Reid Hall, Forfar, carriage paid, *not later* than Monday, May 1st, addressed to the General Secretary.

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The Jersey Amateur Photographic Society will hold an exhibition at St. Heliers on April 11th, 12th, and 13th, which will be limited to amateur photographers in the Channel Islands.

Mr. M. A. Wilkinson, the energetic Hon. Sec. of the E. London Phot. Sec., is compelled through pressure of private work to resign his post.

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The Croydon Camera Club will hold an exhibition at Braithwaite Hall, Wellesley Road, Croydon, from the 5th to the 8th of April. There are four members' classes and the following open classes. (E) Any subject; open to lady amateurs throughout England who have never won a prize in open competition; no size-limits, but if hand-camera work, then not less than four prints on one mount; prize—bronze medal; entrance fee, 2s. each. (F) Any subject; open to all Surrey photographers who have never won a prize in open competition; no restriction, except that hand-camera work must be entered not less than four prints on each mount; the winning print or set in class F will be reproduced in Woodbury-gravure, and the prize consist of forty copies thereof presented to the winner, besides which a copy will be sent to each competitor, and to each member of the club; entrance fee, 1s. 6d., members free. (H) Works of distinguished photographers. By invitation only; not for competion. All works should be delivered framed and carriage paid, with title and owner's name on picture, between Monday, 27th March, and Saturday, 1st April, at Braithwaite Hall, Wellesley Road, Croydon, and a letter of advice, with list of works entered, sent to Mr. G. R. White, 55, Albert Road, on or before Saturday, 25th March, enclosing such entry fees as may be payable. The works in class H will be returned carriage paid to exhibitors, and the amounts paid by them in sending works to exhibition (not exceeding 2s. 6d.) refunded on application. Should in any particular class the quality of the work submitted justify such a course, the medal or other prize may be withheld; but the standard of merit will be one not impossible of attainment by the average energetic photographer.

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Formation of Photographic Association.—On Wednesday evening, 15th February, a meeting of photographers—amateur and professional—in the Airdrie and Coatbridge districts, Lanarkshire, was held in Mr. Platt's studio in Coatbridge. It was unanimously resolved to form a photographic association for the district, and a committee was appointed to prepare a constitution and rules to be submitted to another meeting which was fixed for the 28th inst. The interim Secretary is Mr. W. D. Gray, 16, Bank Street, Airdrie.

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The following were the awards at the Torquay exhibition:—*Members only*—Architecture (interior or exterior): Bronze medal, Dr. R. Pollard for Norman door at Torre Abbey. Genre and Portraits: Bronze medals, Mr. J. C. Dinham and Major Leigh Phillips; certificate of commendation, Mr. H. Mayne. Landscape: Silver medal, Mr. H. C. Howell, for Blea Tom; bronze medal, Mr. G. Barmston, for River Dart. Lantern Slides, best series of six, any subject: Bronze medal, Mr. G. Barmston: certificates, Mrs. G. M. Frean and Mr. C. Underwood. Six prints from negatives taken with a hand-camera: Bronze medal, Mr. H. C. Howell; certificate, Dr. K. Pollard. *Open Classes*—Architecture and Interiors: Silver medal, F. W. Edwards, Peckham Rye (The Nave, Westminster Abbey); bronze medal, C. Court Cole, Oxford (Oxford interiors); extra bronze medal, C. H. Oakden, East Dulwich (Ely Cathedral); certificate, J. Chamberlain, Tunbridge Wells (Clymping Church). Genre: Silver medal, Robert Terras, Fife, N.B. (News of Battle); bronze medal, A. G. Tagliaferro, London (How Happy could I be with Either). Landscape: Silver medal, A. R. Dresser, Kent (Aylesford); bronze medal, G. W. Tyser, Reading (Dovedale); certificates, G. W. Tyser (Venice) and T. M. Brownrigg, Guildford (Derwentwater). Lantern Slides: Silver medal, W. Taverner, Stamford Hill; bronze medal, W. C. Beetham, Cheltenham; certificates, G. E. Thompson, Liverpool, and E. G. Lee, Newcastle-on-Tyne. Marine: Silver medal, W. B. Post, New York, U.S.A.; bronze medal, J. L. McLanachan, Torquay; extra do., H. W. Bennett, London; certificate, J. H. Gear, London. Portraits and Figure Studies: Silver medal, W. M. Warneuke, Glasgow; bronze medal, H. Yeo, Plymouth; extra do., W. J. Byrne, Richmond. Hand-Camera Prints: Silver medal, E. M. Stone, Sydenham; certificate, C. Job, Brighton. Enlargements: Bronze medals, F. W. Edwards, Peckham Rye; A. R. Dresser, Kent. *Ladies only*—Any Subject: Bronze medals, Miss S. A. Acland, Torquay (Mr. Gladstone); Miss K. Truscott, Exeter. The judges were Messrs. S. Morrish, H. Sturmey, and W. D. Welford.

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The Leicester Photo. Soc. will hold an exhibition on March 2nd and 3rd. The exhibition is to be non-competitive, "and is intended to promote the advancement of photography in all its branches, and to encourage healthy emulation in the production of really good pictures displaying artistic merit and technical ability. The Hon. Sec., Mr. H. M. Porritt, 66, London Road, Leicester, will be pleased to give all particulars.

THE Fillebrook Athenæum exhibition will be opened on Wednesday, March 1st, at three o'clock, by Mr. Courtenay Warner, M.P., supported by the President of the Athenæum, Mr. G. A. Hutchison, editor of the *Boys' Own Paper*. In the evening at eight o'clock, Mr. John A. Hodges will give a lecture, illustrated with his own slides entitled "Through North Devon with a Camera." Chair to be taken by Mr. A. Horsley Hinton. The exhibition will be open each day (Wednesday and Thursday) from three till five, and from seven till ten. Musical attractions each evening. Many of the best workers are exhibiting, and a very good show is expected.

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THE West Surrey Photographic Society has started a magazine of its own, which is brightly written and well gotten up.

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THE Bath Photographic Society have elected a sub-committee, consisting of Messrs. King, Pumphrey, Williams, and Powell, to consider the best means of effecting a photographic survey.

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THE Leytonstone Camera Club will give a lantern entertainment at the Masonic Hall, Harvey Road, Leytonstone, on March 1st.

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IN the report of the Aston Phot. Soc. the lecturer's name was given as Mr. Walter Tylar, whereas it should have been Mr. William Tylar.

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THE Harringay Society seems to have found good support, as they have now eighteen members and a small library. The fee is low, and they meet every week.

Societies' Meetings.

Burnley.—On 14th inst., under the auspices of the Burnley Literary and Scientific Club, the members of the Burnley Photographic Society gave a photographic soirée, when there was a very large attendance. Dr. Brumwell, J.P., presided, and explained the latest improvements in hand-cameras, and an exhaustive and interesting address upon photographic progress was given by Mr. Phillips, of Manchester. Ranged round the large room were many pictures, mostly taken by the members, and Mr. D. Drew, J.P., by means of a powerful lantern, showed a number of life pictures.

Croydon (Camera).—The annual meeting was held on the 13th inst, the President in the chair. The report and balance-sheet were adopted, and the following elected to the various posts as executive for 1893-4:—President, H. Maclean, F.G.S.; Vice-Presidents, F. Foss (Mayor of Croydon), the Hon. Sydney Herbert, M.P., F. T. Edridge, J.P., and B. Gay Wilkinson; Treasurer, A. J. Sargeant; Council, Messrs. Frost, Hirst, Holland, Isaac, Neeves, Oakley, Packham, and Wratten; Hon. Sec., G. R. White, 55, Albert Road; Hon. Assistant Sec., S. E. Burrows. On the proposition of the President, it was decided that the club be affiliated to the P.S.G.B. On the proposition of Mr. Smith, seconded by Mr. Chesire, the meeting night was changed from Monday to Wednesday in each week, to take effect from March 1st. The exhibition rules were read and adopted. The annual dinner was announced for March 8th, at the "Greyhound" Hotel. Mr. W. H. Hope proposed a special vote of thanks to the President, Hon. Sec., and Council for past services. There was a very good attendance, due, no doubt, in large measure to the exhibition of the collection of prints known as "Holidays with the Camera." The next meeting is on the 28th inst., when the "National Prize Slides" will be shown.

Darlington.—At the usual monthly meeting, held on the 13th inst., a set of lantern-slides of Yorkshire scenery, made by the Leeds Photographic Society, were exhibited, and a pleasant evening spent by the members and a few visitors, who frequently applauded on an exceptionally choice picture being shadowed on the screen. The members then utilised the lantern to show their latest attempts at slide-making, some of the slides turning out quite artistic pictures.

Derby.—The monthly meeting was held on 14th inst. Mr. R. Keene presided. There was an unusually large number of members and friends present. The minutes of the last meeting having been confirmed, the Hon. Secretary brought forward a circular which had been received from the Photographic Society of Great Britain, in connection with the affiliation scheme; after a short discussion it was decided to join with the P.S.G.B. Mr. Porritt (President of the Leicester Photographic Society) was then called upon to read a paper, his subject being "Isochromatic Photography." Mr. Porritt had, to illustrate his paper, a set of negatives of stained-glass windows, also a hand-painted set of designs for stained-glass windows, to show what gradation of colour could be obtained by means of isochromatic plates and yellow screens; he also had a large number of lantern slides, one set being from negatives taken on ordinary plates and the others of same subjects taken on isochromatic plates. Mr. Porritt passed round a number of yellow screens of various tints, and explained which, in his own opinion, was the best way to make them. An interesting discussion followed, Mr. Porritt kindly answering all questions put to him.

East London.—The members and friends spent an enjoyable evening on the 14th inst, when Mr. F. W. Hindley showed his series of lantern-slides, numbering about 150, entitled "Through Ireland with a Facile," the majority of which were of a high-class character, especially those illustrating the rocky coast and wave studies. The lecturer showed how the manners and customs of the people could be depicted with a hand-camera. The lecture throughout was thoroughly appreciated.

Fairfield.—The ordinary meeting was held on the 14th inst., the President, Mr. Malabar in the chair. The subject for the evening should have been a lecture by Mr. Albert Proctor, but owing to illness it was postponed, and was replaced at the last moment, through the kindness of Mr. Tomkinson, by a paper on "Lenses." Mr. Tomkinson was quite at home in his subject; the evening was a most successful one. The next meeting will be held on March 7th, when Mr. Morgan (representative of Messrs. Fuerst Bros., London) will give a practical demonstration on "Amidol."

Greenock.—On the 16th inst., Mr. S. Buchanan Wollaston, of the Platinotype Co., gave a most interesting and instructive demonstration of the working of the Company's paper by the cold-bath process. He developed prints from thin and normal negatives in a successful manner, and also showed how to get good prints from negatives having great contrasts. The masterful way in which Mr. Wollaston manipulated the prints, and the manner in which he was able to produce such beautiful results was a surprise to the members, and from remarks made by them it was evident that they were highly pleased with the demonstration. Mr. Wollaston also passed round a number of mounted prints which were much admired.

Hackney.—Ordinary meeting held 14th inst., Mr. R. Beckett presiding. The Hon. Secretary reminded members of the lecture on "Photogravure," at Bloomsbury Hall. Cadett's plates (100 Hurter and Driffield) were then handed round. Messrs. Grant, Barker, Gosling, Dean, and the Chairman showed various kinds of work. Some discussion ensued on a print developed with amidol by the Chairman, which was satisfactorily developed in 2½ min. Mr. A. Barker asked, was there any tendency to destroy the transparency in the shadows? The Chairman said that not so much as iron, which was too energetic when fresh. Mr. Nunn asked, was there any advantage in stopping down when making lantern slides? Mr. S. J. Beckett said no advantage would be gained, if lens was good, in stopping down beyond what would cover the lantern plate. Mr. Sodeau knew of a lens which was defective in centre. From the question box: Can an ordinary magic-lantern lens be used for enlarging purposes? The answer given was that it could for 3¼ square or parts of quarter-plate. The front tube would have to be drawn right out or an addition made. The projecting lens should be good or slightly stopped down. Mr. W. H. Sodeau then gave a very interesting paper on "Photo Chemicals." The principal subject he dealt with was their keeping qualities. He attributed the power of keeping according to the atmosphere. A list of deliquescent chemicals was given. He advocated the use of glass stoppers, which if stuck at any time could be tapped or put in warm water. The Hon. Secretary had seen vaseline recommended. Mr. Gosling said he generally found warming in the hand sufficient. Mr. Sodeau proceeded to say caustics corrode the glass, and sometimes joined the stopper to the neck. India-rubber corks were useful, but should not be used for benzine or like compounds. Developing agents were best kept in an acid condition, or filled up to the stopper of the bottle, or ordinary wash bottles can be used if paraffin is kept on the surface of the liquid. He recommended the use of vaseline inside the neck of the bottle for substances which creep up the side. In answer to questions raised by the Hon. Secretary, magnesium should be kept in well-corked bottles; metabisulphite potassium would keep fairly well in paper, if in large lumps, though not advisable. The strength of anhydrous soda was about twice the strength of the ordinary carb. soda. Sulphurous acid would only turn to sulphuric by oxygen. Mr. S. J. Beckett asked, "Will recrystallised hypo be as effective as before?" Mr. Sodeau said about 5 : 4. Numerous questions were asked, but owing to the lateness of the hour the debate would stand adjourned.

Harringay.—A large audience attended an exhibition of members' lantern slides on the 16th inst., when Mr. S. W. A. Ball presided. The oxy-hydrogen lantern was kindly lent by Mr. Dudley Towers. Messrs. Bennett and Towers manipulated the same. Some very interesting anatomical slides were shown, and ably explained by one of the members. Views of Theydon Bois, Enfield, and Epping were shown by Messrs. Ball, Dowsett, Martin, and Simmons. Mr. Towers showed some magnificent views of Ilfracombe and the neighbourhood, and some snap-shots of the same place, taken with a hand-camera by Mrs. Towers, were shown and are worthy of special mention., Five new members were elected. The secretary announced that as Mr. Jenkins had very kindly put one of his rooms at the disposal of the society when they wished, meetings would in future meet every week.

Ipswich.—The annual meeting was held on 17th inst., and a large number of members attended. The President, Mr. J. Dixon Piper, was re-elected, also the Vice-Presidents, Messrs. Mason and Pringle. Mr. A. F. Penraven was also elected Secretary, and Messrs. Bond and Fry added to the former committee. A satisfactory balance-sheet was announced, and Mr. Bond's resolution as to purchasing an enlarging lantern discussed; this, however, was referred to the committee. Mr. Penraven afterwards gave a demonstration of Messrs. Hill's Cresco Fylma method of enlarging, and several negatives were enlarged to twice their original size.

Leigh.—The ordinary meeting was held on 16th inst. There was a good attendance. Mr. Stephen presided. The first of a series of genre competitions was held. "Play" was to be the study. Mr. T. L. Syms gained the first prize with "Guess again"; Mr. R. Leigh, second prize with "Spades and Trumps"; Mr. Isherwood, third prize with "A Game at Marbles." A lantern exhibition was held. the AMATEUR PHOTOGRAPHER Peak and Dale Slides being passed through the Technical Schools lantern. The next study for competition will be "Work."

Lewisham.—On 17th inst., as our annual competitions take place at the end of the present month, the evening with Mr. Wall will doubtless prove of considerable benefit to the members, as he brought with him a collection of prints sent in to the AMATEUR PHOTOGRAPHER competitions, showed their faults and how to avoid them. By far the most noticeable defect was a want of balance in the composition, that the principal lines converged too near the centre of the picture, and that very often the horizon cut the picture in two almost equal portions, besides which, because the photograph had been taken on a certain size negative, the print was trimmed as large as possible, whereas if it had been considerably cut down, especially as regards the foreground or sky and sometimes both, a picture would have more likely resulted, which he clearly showed in a print which had most probably been a whole plate, cut down to about 2 by 7 in., with a most excellent result. Of course, the reason was that photographers tried too get too much into the picture, and that if they were to go very much closer to the subject, and use one of the combinations of their R.R. lenses, they would the more often get a pleasing effect. He said it was a great mistake to use one printing process for all kinds of negatives, and advised trying different methods with each individual negative, which would very often prove that what was thought the worst would turn out to be the most suitable.

Leytonstone.—Ordinary meeting was held on the 15th inst., T. Watson Brown, M.A., in the chair. Mr. H. E. Farmer, before a large attendance, read a paper, "Lantern Slides, and how to Make them," with demonstration, and commended lantern slide making as the most fascinating branch of photography, explaining how easy it was with a quarter-plate camera to succeed with slide-making. The advantage of slides over prints as a means of entertaining friends was then shown. The lantern slide after all was only a print upon glass instead of paper. He described the essentials of a good lantern slide, and the making both by contact and reduction. Dodging was shown, intensification, reducing, etc. A discussion followed.

Liverpool (A. P. A.)—On Feb. 16th Mr. W. T. Wilkinson gave a lecture and practical demonstration, specially intended for beginners, on the camera, and the use of its different parts; lenses, explaining the properties of the various lenses in the market, what was claimed for them, and the best lens for the different subjects; exposure meters, their use, and the mode of working, concluding with a few suggestions on shutters for time and instantaneous work.

Newcastle.—A lantern evening was held on the 14th inst., Mr. John Watson in the chair. The AMATEUR PHOTOGRAPHER Prize Slides were exhibited. Amongst the prize-winners were a set by the Hon. Secretary, Mr. Edgar G. Lee, illustrating Newcastle slum life, which were awarded a gold medal in this competition. The slides, on the whole, were of a superior quality, the genre studies by Mrs. S. F. Clarke, of Louth, and the architectural subjects by Mr. J. W. Wade, of Manchester, calling for special mention.

North Middlesex.—Forty-three members and several visitors assembled on the 13th inst., to assist at a demonstration on "Enlarging" by Mr. H. M. Smith, of the Eastman Co. He commenced with the subject of large cameras and direct prints versus small cameras and enlargements, and after discussing the various pros and cons of weight, portability, expense, and excellence of results, said he had come to the conclusion that he would use nothing but small sized cameras and enlarge. He, in fact, went farther, and said he would use nothing but a hand-camera for outdoor work. It was the greatest mistake possible to suppose that a hand-camera was only suitable for snap shots, when it could be used on a tripod, as most of those now on the market could. He maintained that work could be done with it in every way equal to that done with the ordinary camera, and he had made many enlargements from such negatives which had raised considerable discussion among able photographers as to whether they were enlargements or direct prints, most people taking them for the latter. He then dealt with the manufacture of bromide paper, explaining the old method of coating by hand, and that now generally practised of coating a roll of paper about a mile long by forty-three inches wide by passing it through a trough containing emulsion. then over iced rollers to cool, whence it was carried to the roof of the building where it hung in festoons of about thirty feet each to dry. The paper was thus prepared much more perfectly and cheaper than by the old method, as nine miles of such paper could be turned out in twenty-four hours. The paper was packed in dozens, eleven sheets facing one way and the twelfth the reverse, thus enabling the user at once to see which was the film side. He also referred to the absence of glaze on the surface, making it very suitable for working on with colours. Passing then to the actual enlarging, he described the various methods of daylight and artificial light enlarging, but recommended amateurs to stick to daylight as giving the best and most even results. The best way to find the proper exposure was to make a trial on a small piece of paper immediately before exposing on the large sheet, and modifying that according to the result shown by the trial. He was of opinion that the ferrous oxalate developer was still the best for bromide paper, and the formula given with their paper could be relied upon. He then developed in succession three prints of the interior of Salisbury Cathedral, one correctly exposed, the second under exposed, and the third over-exposed, using the normal developer for each and showing what the result of under and over exposure was, at the same time explaining how these errors of exposure could be corrected by strengthening the developer, by adding more iron for the under-exposed paper and weakening it for the over-exposure. Replying to questions, Mr. Smith said he did not recommend magnesium ribbon as an illuminant, because one could never tell exactly what condition the ribbon was in, and this would cause considerable irregularity in the illumination. The household gas too was not suitable, on account of the prolonged exposure required, which would be found somewhat troublesome. The relative speed of the Eastman paper was that the "extra rapid" paper was three times faster than the "permanent." Starch, paste, or a gelatine mountant was the medium used by the Company for mounting their enlargements, but the latter was not so suitable as the former, on account of the quickness with which the spirit evaporated, causing it to dry before the print was in proper contact with the mount. Paper had been kept as long as four or five years after manufacture before exposing, and yet was found in perfect condition. He did not recommend toning with uranium for sepia tones, because the deep shadows were liable to bronze, giving anything but a pleasing effect.

Phot. Soc. Great Britain.—The annual general meeting was held on 14th inst., Capt. W. de W. Abney in the chair. Six new members were nominated, and the Hon. Sec. announced that ten societies had that evening been admitted to affiliation. It was announced that of the photographs selected from the last exhibition for the permanent collection, the following had been received, in most cases the donors presenting the pictures framed: The Autotype Co., "Young England"; Mr. Birt Acres, "The Story of a Cloud," Mr. W. Bedford, "Salhouse Dyke, Norfolk," and "Norwich Anglers at Horning"; M. F. Boissonnas, "Mont Blanc" (two photographs); Mr. Karl Greger, "Marsh Idyll" and "Sunset on the Lower Thames"; Mr. F. Hollyer, "Portraits of J. M. Barrie, Esq., and G. F. Watts, R. A."; Herr F. Muller, "A Portrait"; Mr. J. H. Roller, "A Portrait"; Mr. W. M. Warneuke, "A Portrait"; Mrs. Main, "Frost and Sunshine" (two photos). Others promised, being expected in a month or two The report of the Council and Treasurer's accounts were then read and adopted. The result of the ballot for officers and Council was announced as follows:—President, Capt. W. de W. Abney, C.B., R.E.; Vice-Presidents, Messrs. Glaisher, Spiller, Pringle, and Sir H. T. Wood; Council, Messrs. Ackland, Addenbrooke, Bolas, Cembrano, Clifton, Cowan, Dallmeyer, Sebastian Davis, Debenham, Emerson, W. England, Freshwater, Gale, Hollyer, Lindsay Johnson, Chapman Jones, Mackie, Swan, Traill Taylor, and Warnerke. A vote of thanks having been passed to Capt. Abney, in reply he referred to the future of the Society with confidence, and remarked that he should have stood for the Presidentship of the Society had it only been to show how unwarranted were the insinuations made in a certain quarter. Votes of thanks were passed to the Treasurer, the Auditors, and Scrutineers, and to the Secretary and Assistant Secretary. The meeting then passed to the consideration of the new rules, about one-half of which were passed with slight verbal alterations, and the consideration of the remainder deferred until the 28th inst, at 9 p.m.

Photo. Soc. of Ireland.—A special meeting was held on 17th inst., Prof. J. A. Scott, M.B., President, in the chair. A highly interesting demonstration of "Experimental Illustration of Various

Forms of Silver Reduction" was given by Mr. Emil A. Werner, F.C.S. The lecturer showed how reduction was accomplished by solutions of pyrogallic acid, hydrokinone, eikonogen, and amidol. The separation with eikonogen was immediate, and he applied his illustrations to the development of a dry plate. Mr. Werner also showed Carey-Lea's method of producing "golden" silver and "blue" silver, and successfully coated an evaporating dish which dried in a few minutes with a beautifully brilliant reflecting surface. On the conclusion of the demonstration, Mr. Alfred-Werner showed how to produce reversal of the negative image whilst developing.

Richmond.—On the 13th inst, Mr. C. H. Davis in the chair, a complete demonstration of the treatment of prints by the carbon process was given by the Autotype Company. Mr. Braham, in an address, gave a short historical resumé of the process and a description of the various materials and apparatus used. He then, with Mr. H. J. Burton, went through all the necessary manipulations with a number of prints which had been prepared for the demonstration, exemplifying the single and double transfer processes. A number of fine illustrations were on exhibition in the room. The Chairman announced the sad loss which the club had sustained in the lamented death of Mr. G. M. Whipple, and it was decided to send a letter of condolence to his family.

Rochester.—This club had a long evening on the 14th inst., when Mr. Morgan, representing Messrs. Fuerst Brothers, gave a demonstration on "Amidol as a Developer." Two plates which had been exposed that morning when it was raining were most successfully developed. Mr. Morgan also used amidol with bromide paper and a lantern plate with the same result, the lantern plate being rapidly dried and passed through the lantern. Questions were put to Mr. Morgan as to whether the addition of any alkali would be of any advantage, and Mr. Morgan said it was optional but not recommended, and several of the members gave their experiences with amidol. It was admitted to be the best developer for bromide paper, and to have many advantages over pyro, one member stating that he had used the formula given by Mr. Dresser for some bromide papers with success, and had again used the same solution three days after without any addition, and did not find it had lost any of its powers. A great future was predicted for the developer, and a hearty vote of thanks was given to Mr. Morgan for his able demonstration. Mr. H. Dan then exhibited some monthly competition slides kindly lent by the Editor of AMATEUR PHOTOGRAPHER, Mr. Lines attending to the lantern.

West London.—On the 14th inst. Mr. A. Horsley Hinton read a paper entitled "Specialisation in Art Work." He advocated close and serious study of nature in all her moods, confining such study preferably to a limited area, or at least to one class of scenery, until the photographer should find the conditions most favourable to the best rendering of the subject he might wish to reproduce. Under such circumstances he would find beauties in nature that would not be apparent at the first or second visit to the scene, and he would be better satisfied with his ultimate impressions than with the first momentary ones. In the discussion which ensued, Mr. Tripplin, whilst paying full deference to the views of Mr. Hinton, pointed out that photography was elevating in itself, and that too high a standard of refinement in photographic work should not be universally insisted upon. The majority of members were business men with limited time and could derive great pleasure from their photographic work if they secured a picture of a view that pleased them, even though it might not possess all the qualities of a work of art. He admitted, however, that by working to a high standard degeneration was prevented. Mr. Whiting insisted on the importance of education in picture making, and suggested that great good would result from the forming of a class of instruction in Art—the rules of art and composition should be well instilled. Mr. Hinton, replying to the previous speakers, pointed out the difficulty of ascertaining what it is in a picture which pleases and securing it. He stated that the photographer's aim should be to catch the sentiment of the subject as far as possible. He would not be bound by rules of composition, which were scientific, and thus opposed to the artistic. He suggested that good would be derived from competitions in the illustration by photography of a given subject. Mr. Selby disagreed with Mr. Hinton on the importance of rules of art, stating that it is necessary—particularly, at first—to have a grammar to work upon. Mr. Winter agreed with the objections of Mr. Hinton to rules of art, and deprecated the copying of the methods of the painter. He would take what was pleasing to the eye, and he strongly urged the advisability of cultivating the technical side of photography as an aid to the pictorial side. Mr. Winter concluded with a candid criticism on some of the photographs exhibited by Mr. Hinton.

Wolverhampton.—The monthly meeting was held on 13th inst. The subject was "The Norfolk Broads," by Mr. Herbert E. Perry. The lecturer commenced by putting a map of the district on the screen, showing the three rivers, Yare, Bure, and Waveney, all communicating and running into the sea at Yarmouth. Attention was drawn to the curious fact that although the sea is rapidly encroaching on these coasts, the fen and marsh districts adjoining the three rivers are being drained and reclaimed for agricultural purposes. The lecturer then conducted his hearers from Wroxham, the northern extremity of the Broad district, down the Bure, with its tributaries the Ant and Thurne, to the most eastern point Yarmouth, thence to the southern boundary at Beccles, back again and up the Yare to its western extent at Norwich. The lecture was illustrated by nearly fifty slides, which showed the district in its many phases, including also views of Peterborough and Norwich Cathedrals. An unusually large number of members were present.

York.—On February 15th *Photography* Prize Slides, and on February 20th the AMATEUR PHOTOGRAPHER Prize Slides were exhibited to appreciative audiences, and the many beautiful pictures in both collections gave great pleasure, as well as exemplifying to what perfection this branch of the art has been brought.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer Questions by post.

QUERIES.

5938. **Retouching Desk.**—Will some reader of the AMATEUR PHOTOGRAPHER write a short article on how to make a retouching desk? which would be very acceptable to many an amateur, besides—HARRY.

5939. **Spoilt Celluloid Films.**—What good are celluloid films when spoilt?—KONO.

5940. **Mouldy Prints.**—How is it my prints have a few white mouldy spots on them after having been toned, fixed, and mounted for about a month?—R. H.

5941. **A Borax Bath.**—I would be glad of a formula for a borax toning bath.—H. V.

5942. **Retouching.**—If any of your readers could give me a few elementary hints on retouching I shall be obliged.—X. I. S.

5943. **Test Papers.**—For what purpose are test papers used, how used, and where can they be obtained, and is it possible to make them?—KENT.

5944. **Stop.**—What is the best stop to use in a R.R. lens for portraiture.—H. E. R. T. S.

5945. **Changing Apparatus.**—I would be much obliged to R. W. J., who writes in No. 434 of the AMATEUR PHOTOGRAPHER *re* sheaths and changing box, if he would let me have a sketch of his changing arrangements, as I am about to make a hand-camera and would be thankful for any help.—S. S. L.

ANSWERS.

5914. **Oil for Lantern.**—The oil which I find gives the best light is half paraffin and half colza mixed, into which is put one or two of Naylor's paraffin carbons. This will be found to give a good white light. MONTROSE.

5916. **Bromide Paper.**—The following formulæ give a very good brown tone to bromide paper, if it is of any use to the querist, viz. :—

Quinol	2 gr.
Ammonium carbonate	24 ,,
Ammonium bromide	¼ ,,
Water distilled	1 oz.

Must be mixed immediately before using.—MONTROSE.

5922. **Colouring Prints.**—I refer the querist to Messrs Wells and Richardson, 1 and 2, Australian Avenue, E.C., from whom you will get full particulars. —MONTROSE.

5924. **Enlarging.**—Four-inch condensers are large enough for quarter-plate, and 8 in. for half-plate.—MONTROSE.

5925. **Loss of Density.**—This is either under-development, over-fixing, or too strong fixing.—MONTROSE.

5926. **Curing Distortion.**—I fail to see how it is possible to do anything with your negative in its described state.—MONTROSE.

5933. **York.**—The "Practical Guide to the City of York and its Cathedral," price 1s., published by Ben Johnson and Co., Micklegate, is about the best of the guide-books to York.—F. G BENSON.

5936. **Lens.**—You can get the very lens you want from Perken, Son, and Rayment, 99, Hatton Garden, London, price 40s. Will be glad to send you specimen of work done with mine. Address with Editor.—WM. A. JACKSON.

QUERIES UNANSWERED.

Jan. 20.—Nos. 5911, 5913.
,, 27.—Nos. 5916.
Feb. 3.—Nos. 5919.
,, 10.—Nos. 5923.
,, 17.—Nos. 5927, 5928, 5929, 5930, 5931, 5932, 5934, 5935, 5937.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week This we much regret.* ED. AM. PHOT.

W. INGHAM.—Thanks for print; the only fault is that the background is a little too near and the roller shows through the trousers.

J. ASTON.—Undoubtedly the plate makers reap a rich harvest from the cause stated in your letter, but still it is possible to use cheap lenses intelligently and turn out good work.

W. H. ELLIS.—It is curious. Many thanks for help.

F. E. CURREY.—Yes, there would be considerably more depth of focus with the 8 in. than with a 13½ in. lens.

AULD REEKIE.—(1) We have not yet determined the conditions, but will send you entry form as soon as possible. (2) Sensitised silk may be obtained from A. Schwarz and Co., 9, New Broad Street, E.C., and may be had in packets at reasonable rates and various colours. Its keeping powers are about equal to gelatino-chloride paper. (3) We shall be pleased to criticise prints for you; number them, and send stamps for return.

BLANCHE.—Many thanks for letter. Why not try some old or spoilt celluloid films dissolved in amyl-acetate. This can be applied cold and, though slow drying, is a capital varnish. Mawson's cold varnish is satisfactory.

W. STEWART.—Coat well-sized paper with—

Gelatine	154 gr.
Perchloride of iron	308 ,,
Tartaric acid	154 ,,
Ferric sulphate	154 ,,
Distilled water	$10\frac{1}{2}$ oz.

When dry, expose, under-plan, and develop on—

Gallic acid	308 gr.

dissolved in

Methylated spirit	$6\frac{1}{2}$ oz.

then add

Distilled water	35 oz.

When sufficiently developed wash in cold water. The paper can be obtained commercially from Gotz, 19, Buckingham Street, Strand.

J. KENTISH.—(1) Over-toned, sky wants clouds, and water too white. (2) Wants clouds, too much foreground; cut an inch at least off. (3) Over-toned, wants cloude, too much foreground, and not artistic. (4) Good technically, but not artistic.

RICHMOND.—

I.	
Pyro..	1 oz.
Sodium sulphite	4 ,,
Citric acid	30 gr.
Distilled water	10 oz.
II.	
Sodium carbonate	1 oz.
Potassium carbonate	1 ,,
Potassium ferrocyanide	1 ,,
Distilled water	10 ,,

For use, take 1 drachm of No. 1, add 2 oz. of water, add by degrees 2 drachms of No. 2, and if over-exposure is expected 10 drops of bromide of potash 10 per cent. solution.

E. WALSH.—Yes, anyone may use, and Elliott and Son will supply you with packets of cut paper; see advertisement. Price rather cheaper than albumen paper.

ENQUIRER.—With a $5\frac{1}{2}$ in. lens the following conjugate foci are right:—f = focus, o = object. f $6\frac{1}{8}$, o 5 ft.; f $6\frac{5}{8}$, o 35 in.; f $6\frac{7}{8}$, o 27 in.; f $7\frac{5}{16}$, o 22 in.; f $8\frac{1}{4}$, o $16\frac{1}{2}$ in. The nearest point in focus when lens works at equiv. focus depends upon the aperture, and the greatest allowable error, if you assume this to be $\frac{1}{150}$ in., the distance will be 24 ft., with $f/8$ if your assume $\frac{1}{100}$, then with $f/8$ the distance will be 16 ft., $f/11$, 11ft. 9 in.; $f/16$, 8 ft.; $f/22$, 6ft. You would find on p. 394, vol. xiv., full information on this point.

S. P. TWEMLOW.—The central fog is flare, and as your lens was working at an aperture of $f/55$, it can hardly be said to be the smallness of the aperture. It might have been caused by the reflections from the bright stop, but is more probably caused by the stop being in a wrong position. Turn the stop out in a lathe, and put in a fresh one just loosely, shifting it nearer to or further from the lens, trying it practically after each change of position to see whether it will give flare.

J. G. BENSON.—Many thanks. Should be very glad to have article.

T. R. WALLS.—The films are not more difficult to work than the plates. Fitch, 34, Angell Road, Brixton, has some good light film carriers.

R. COOK.—We should prefer Archer's saturator.

FRANK GRAY.—(1) Bates' or Tylar's black is generally used, or lamp-black mixed with negative varnish will do, or asphaltum dissolved in benzol. (2) Form for slides sent on, print competition not yet settled. (3) We will send you on prints this week. (4) Either advertise or insert query in our "Query" column asking for loan of negatives. (5) Yes; isochromatic plates can be used without a screen. (6) Always pleased to criticise prints. (7) The fault lies in the fact that the sky and clouds reflect more actinic light than the landscape, consequently when a time exposure is given they are over-exposed and lost in the great density. (8) Provided your horse was in the centre of the plate and not too near, use full aperture; if near, and not in centre, $f/11$. (9) Any view-finder which is in the form of a miniature camera. Watson, Taylor, Perken, Lancaster, and every dealer keeps such things. (10) Ammonium sulphocyanide will not spoil if kept well stoppered. It is not sensitive to light, only very hygroscopic or absorbent of moisture.

R. B. BRIERLY.—You should know the rule, which is, "Add 1 to the number of times the negative is to be enlarged, and multiply by the focal length of lens." In your case it is $62 \div 6\frac{1}{2} + 1 \times 9 = \frac{24}{13} + 1 \times 9 = 25\frac{8}{13}$, distance between A and B. To find the distance between B and C, divide above by number of times of enlargement, so $\frac{333}{13} \div \frac{24}{13} = \frac{111}{8} = 13\frac{7}{8}$ in. Or you may assume that you enlarge your negative twice, as some of the half-plate is cut off, and then you would get $(2 + 1) \times 9 = 27$ in., and $27 \div 2 = 13\frac{1}{2}$.

WM WEBB.—We believe the turntable is a patent still in existence.

W. H.R.—Letter by post.

HIRCUS.—Both prints are correctly developed and of a good colour. If the mark is in the second negative the only thing to do is to paint out the background with Bates or Tylar's black, and vignette the head and shoulders and make a fresh negative.

CHIPS.—(1) The washer named is, from all accounts, efficient, but we have never used it. (2) Yes, the exposures would be about right, we should think.

CUPIO DISCERE.—(1) Approximate by camera screw, then use rack of lens. (2) Give your negatives ten minutes' soaking in alum 1 oz., citric acid $\frac{1}{4}$-oz., wash, and bleach in

Bichromate of potash	50 gr.
Hydrochloric acid	10 drops
Bromide of potash	10 gr.
Distilled water	2 oz.

When thoroughly bleached wash and redevelop with old hydrokinone, and when the shadows are developed, and before the high lights are developed through, refix and wash. This will soften your results. (3) Use a knife such as the "Professional," noticed last week, or use a needle stuck in a pen-holder. (4) Newman's studio would do if the lens is not too large; send us up measurements of inside of camera front, and we will see Newman and Guardia, and let you know. Always glad to help you.

DOUBTFUL.—Messrs. R. and J. Beck state that they are now making all preparations for turning out quarter-plate Frenas, but that they are afraid this size will not be ready till the autumn.

THORNHILL.—(1) Under-exposed negative would stand intensifying and print over-toned. (2) Negative much under-exposed. (3) Under-exposed. (4) Insufficiently developed—wanting in artistic merit. (5) About right. (6) Fogged, negative wants intensifying. (7) Under-developed, wants intensifying. (8) Wants intensifying. (9) Fully exposed, wants intensifying. (10) Wanted reflection to light shadow side of face. Let us know what developer you are using.

AFRICA.—We should recommend No. 1; it seems to us the best for your purpose.

S. M. H.—No. 2, we think.

J. P. C.—Letter by post.

H. T.—(1) Rather over-toned, and did you use an isochromatic plate? We think not. (2) Good. (3) No, we should have developed longer. (5) Wants a little more sky and clouds. Slides all about right density, and show careful technical work.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence*** *Every additional* ***three words, one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one word****; compound words count as* ***two words.****)*

DEPOSITS.—*money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of* $2\frac{1}{2}$ *per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge* 1s.

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of* 3d. *to cover postage.*

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, *1, Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR, AMATEUR PHOTOGRAPHER, *1, Creed Lane, London, E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.,*** *or a commission of* ***$2\frac{1}{2}$ per cent.,*** *upon the sale price of the apparatus.*

Cameras, etc.—Lancaster's Omnigraph detective camera, with changing box for six plates, nearly new, 15s.—H. Wilson, 4, Orchard Place, Streatham Common, Surrey.

Half-plate Lancaster's Instantograph, with two slides, changing box, and stand, almost new, approval, £3.—Grenville, Chacewater, Cornwall.

Cameras, Lenses, etc.—Whole-plate camera, latest improvements, three double slides, lens, as new, in solid leather case, cost £16 10s., price £7 15s.—Bewley, 34, Traverse Street, St. Helens, Lancs.

Case.—Handsome polished mahogany case for half-plate camera, lens, and three double slides, lined red baize, five compartments, lock, leather straps and handle, as new, cost 30s., price 16s.; description and sizes on application.—Gibbons, Belvedere, Westminster Road, Eccles.

Hand-cameras, etc.—Fallowfield's Facile hand-camera, washer, with rack and syphon, printing frames, dishes, as new, price £3.—M. Helliar, Dorset Villa, Yeovil.

Lancaster's Omnigraph hand-camera, excellent condition, with two magazines, 15s.—J. Mortimer, Ordnance Row, Portsea.

Adams' Otto hand-camera, new, exchange for a good quarter-plate camera.—Williams, 48, Windsor Terrace, Seaside Road, Eastbourne.

Adams' Ideal hand-camera (Wray's lens), £7.—Dunsford, 9, Broadway, Ludgate Hill.

Hand-camera, Cytox, fine rapid lens, carries 12 quarter-plates, deposit, 25s.—Bailey, 22, Panton Street, London, S.W.

Shew's quarter-plate universal, three double backs, Taylor's finder, walking stick tripod, Ross' 5 by 4 universal symmetrical lens, etc., lately cost over £12, price £9.—No. 373, office of this paper, 1, Creed Lane, E.C.

Griffiths' detective camera, lens, finder, and two slides, price 13s.—Lennerd, 29, Clarence Street, Marsh Lane, Preston.

Kodak hand-camera, brand new, lens, shutter, finder, and rollholder, approval, price £1 10s.—Lennerd, 29, Clarence Street, Marsh Lane, Preston.

Turnbull's hand-camora, six double backs, rectilinear lens, can focus on screen, two finders, price 40s.—B., 52, King's Square, Goswell Road, London.

Fallowfield 5 guinea hand-camera, exchange for whole plate general lens.—D., Milton, 15, Offley Road, Brixton, S.W.

Adams' Ideal hand-camera, fitted with Wray's lens, to focus, and to include spare lens mount, cap, and stops so that it may be used in ordinary camera, only used a few times, equal to new, price £7.—C. Churchill, Enderby's Wharf, East Greenwich.

Lanterns, etc.—Lantern, 3 in. condenser, strong lens, good condition, cheap, 7s. 6d.; three sets of coloured slides, one dozen in each, 7s. 6d. the lot; also mahogany sketching camera, good lens, 5s. 6d.—Write, Charles, 27, Church Street, Camberwell.

Pair oxy-hydrogen lanterns, mahogany, in good condition, with brass-mounted condensers, 4 in., and also 6 in. focus lenses, mounted with rack and pinion adjustment, chamber jets and dissolving tap, all in wooden box, complete, price £4.—M., 100, Dalston Lane, Dalston, N.E.

Three-wick lantern by Optimus makers, and about 80 photographic slides, nearly new, £2 5s.—No. 378, office of this paper, 1, Creed Lane, E.C.

Lantern Slides.—Clearing out. Quantity lantern slides, effects, tales, etc., lists sent.—Copeman, Henetridge.

Lenses, etc.—Four excellent lenses, some shutters, other useful sundries, at nominal prices for cash.—W. Bailey, 22, Panton Street, London, S.W.

Whole-plate new rapid rectilinear, Waterhouse stops, 22s. 6d.—Albert Durn, Wotton-under-Edge, Glos.

Whole-plate Ross rapid symmetrical with time and instantaneous shutter, working behind, £5 10s. the two.—F. J. Clarke, Charlotte Villa, Fairlop Road, Leytonstone.

Lancaster's quarter-plate W.A. rectigraph lens, perfect, cost 30s., sell 20s., bargain; Ross' 5 by 4 rapid symmetrical, as new, £3.—G. E. Franklin, Rickmansworth.

Wray's half-plate landscape lens, 9 in. focus, 22s.; Ross-Zeiss, series 4, focus 6 in., covers whole-plate, 63s.; approval; deposit.—No. 376, office of this paper, 1, Creed Lane, E.C.

What cash offer for Wray R.R. lens, $6\frac{1}{2}$ by 5, perfect, nearly new?—No. 374, office of this paper, 1, Creed Lane, E.C.

Plates.—7 doz. sensitive plates, various, cost 17s. 8d., price 13s.—Jones, *Gazette* Office, Malton.

Sets.—Watson's half-plate camera, reversible, rising front, square bellows, Watson's half-plate R.R. lens, three double slides, three-fold tripod, waterproof case, Adams' half-plate changing bag, used only one season and all in good order, price £8; approval; deposit.—C. Moss, 21, Charleville Circus, Sydenham.

Marion's whole-plate Compacta camera, all movements, and six backs to fit, condition as new, take £2 10s.; McKellen's half-plate reflector focussing hand-camera, covered best morocco and three best double dark slides, no lens, take £2 15s.; half-plate extension bellows camera, one slide, new condition, take £2 10s.—G. A. Knight, 8, Elphick Road, Newhaven, Sussex.

Lancaster's half-plate Le Meritoire set, complete, good condition. What offers?—E. J. Tattam, 129, Alma Road, Sheerness.

Offers wanted for half-plate camera by Skinner, double slide, cost £5; Ross $8\frac{1}{2}$ by $6\frac{1}{2}$ rapid symmetrical lens in leather case with adjusting shutter, cost £6 10s.; quarter hand-camera, Optimus 5 by 4 R.R. lens, cost £5; Clement and Gilmer's lens adapter, cost 17s.; four-fold stand, Watkins' exposure meter, list of sundries, costing over £5, to be sold cheap; sent on receipt of stamped envelope; everything in first-class condition; letters only.—164, High Street, Hounslow.

Shutter, etc.—Kershaw instantaneous shutter, $1\frac{5}{8}$ in. hood, with ball and tube, new, 10s.; also light wood tripod and triangle, very rigid, folding middle, 10s.—Pickard, 79, Piccadilly, Manchester.

Sundries.—Microscope object-glass, Wray's 1-10th in with adjustment in case, new, take 45s., bargain.—R. Wilson, Chemist, Kirkcaldy.

Fiddle for sale, with baize-lined case and excellent bow. Violin has lovely rich ringing tone, and advertiser warrants it to be in perfect preservation. Suit lady or gentleman for solos or concerts. Accept remarkably low figure if sold at once, viz., 17s. 6d.; very special bargain. A lot of good music given in free. Approval willingly.—Mrs. Graham, College Buildings, Ipswich.

WANTED.

Cameras, Lenses, etc. — Wanted, half-plate camera, good maker, with lens, etc.—No. 377, office of this paper, 1, Creed Lane, E C.

Lenses, etc.—Wanted, half-plate R.R. lens (Beck or Taylor preferred), with Thornton-Pickard shutter. —E. Hallett, Cardington Road, Bedford.

Wanted, first-class casket lenses, cheap.—No. 375, office of this paper, 1, Creed Lane, E.C.

Sets.—Whole-plate set, complete; exchange stereo-instantograph with extra landscape and R R. lenses.—Particulars, Copeman, Henstridge.

Stereoscopic Apparatus.—Wanted, stereoscopic camera, half-plate size, with lenses, and long extension preferred; state maker.—W. Linton, 11, St. John's Hill, Edinburgh.

Sundries.—Wanted, "Work," complete or incomplete; lowest price.—Brayshaw, Brixworth.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Cameras and Sets.—Camera, 10 by 8 finest mahogany, double extension, leather bellows, wide-angle movement, rising and falling front, fine rapid rectilinear lens, Waterhouse stops, two double slides, clips, and catches, and sliding two-fold stand as new, £8 15s.; whole-plate Duchess camera by London-Paris Optic Co., Aldersgate Street, grand lot, all movements, finest mahogany, best leather bellows, double extension, rising, falling, and cross fronts, two double slides, metal divisions, rapid rectilinear lens works *f*/8, Waterhouse stops and three-fold ash tripod, as new, £9 15s.; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; Morley's 7½ by 5 patent camera, double extension, leather bellows, rising and panel front, swing back, three double slides, Morley's 8 by 5 rapid rectilinear lens, Waterhouse stops, folding tripod and case. £6 12s. 6d.; Lancaster's half-plate Instantograph camera, double extension leather bellows, moveable baseboard, rising, falling, and cross fronts, fine lens, iris stops, double slide, folding stand and case, 50s.; half-plate Lancaster's special brass-bound Instantograph as new, wide-angle movement, double extension leather bellows, etc., Lancaster's lens, iris stops, special see-saw shutter, two brass-bound double slides, folding stand, and case, £4 12s. 6d.; half plate camera, the Earl, by Thompson, Aldersgate Street, double extension leather bellows, rising and falling front, swing and reversing back, fitted fine rectilinear lens, good definition, Waterhouse stops, two double dark slides with metal divisions and folding stand, warranted as new, £4 12s. 6d.; Rapidograph half-plate camera, by Perken, Son, and Rayment, double extension, leather bellows, reversing and swing, three double slides, fine rapid rectilinear "Leviathan" lens, iris stops, grand definition, three-fold stand and case, £6 17s. 6d.; half-plate Underwood's Instanto camera, leather bellows, square wide-angle movement, rising, falling, and cross fronts, double dark slide, quarter carrier, rapid rectilinear lens, Waterhouse stops, and folding stand, £3 17s. 6d.; half-plate "Duke" camera, double extension leather bellows, rising, falling, and panel front, back and front extension, two double slides, metal division, rapid rectilinear, Waterhouse stops, and folding stand, as new, £6 5s.; quarter-plate extending camera, bellows body, rising and falling front by Morley, Islington, good landscape and portrait lens, double dark slide, and folding stand, 22s. 6d.; Lancaster's quarter-plate extra special brass-bound Instantograph, triple extension, wide-angle movement, two brass-bound double slides, fitted fine rapid rectilinear lens, Waterhouse stops, and three-fold mahogany stand, set complete and as new, £3 12s. 6d.; quarter-plate Instantograph camera, double extension, etc., Instantograph lens, shutter, two double slides, and folding stand, 32s. 6d.; quarter-plate Lancaster Le Meritoire set, complete, camera, lens, two slides, and stand, best condition, 27s. 6d.; quarter-plate Underwood's Convention set, camera, lens, two slides, and stand, best order, 32s. 6d.; quarter-plate Le Merveilleux set, by Lancaster, complete, 15s.; quarter-plate extending camera, best order, good lens, two double book-form slides, and folding stand, 17s. 6d. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Hand Cameras.—No. 3 Kodak Junior, rapid rectilinear lens, time and instantaneous shutters, adjustable focus, fitted new spool, sixty films (quarter-plate) in leather case, £5 15; Optimus detective camera, finest Spanish mahogany, brass bound, fitted Wray's 5 by 4 R.R. lens, Thornton-Pickard shutter, two finders, level, etc., as new, £5 7s. 6d.; Lancaster's superior Omnigraph latest pattern, all improvements, as new, 25s., and another covered leather, 20s.; Adams' Ideal hand-camera, all latest improvements, grand condition, fitted R.R. lens, time and instantaneous shutter, two finders, carries 12 quarter-plates, covered morocco, £5 12s. 6d. lowest; Ariel pocket camera, leather extending bellows, fitted Wray's 5 in R R. lens, Thornton-Pickard shutter, three double book-form slides with catches and clips, Taylor and Hobson finder, the set fitted in waterproof case, very light and portable, as new, £5 5s.; Tit Bits hand-camera, good lens, two slides, covered leather, best order, 10s. 6d.; No. 1 Talmer, fitted landscape lens, rotating stops, time and instantaneous shutter, bag changing, carries 12 plates, in case, £2 17s. 6d.; Fallowfield's Facile, carries 12 quarter-plates, good lens, shutter, etc., finest condition, £2 12s. 6d.; Optimus detective camera, Optimus rapid rectilinear lens, time and instantaneous shutter, adjustable focus, three double slides, covered leather, two finders, finest condition, £4 5s.; No. 1 Kodak, best order, rapid rectilinear lens, shutter, etc., carries 100 films, in leather case, 37s. 6d.; Radial hand-camera, by Marion, fitted Soho R.R. lens, shutter, focussing, carries twelve quarter-plates, in Marion's leather, as new, £5 16s. 6d.; "A" Daylight Kodak, as new, good lens, shutter, finder, covered leather, as new, 25s.; Houghton's Automatic hand-camera, guaranteed as new, rapid rectilinear, rotating stops, Thornton-Pickard shutter, carries 12 quarter-plates, fine camera, £4 10s.; All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second hand apparatus bought, sold, or taken in exchange. Inspection invited.

Magic Lanterns and Slides. — Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

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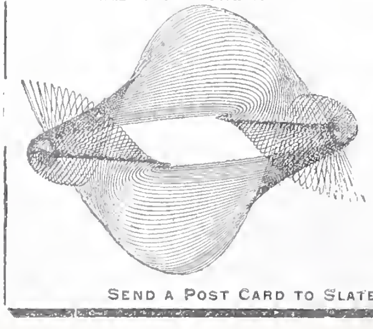

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No. 439. Vol. XVII.] FRIDAY, MARCH 3, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

Our Views.—The New Central Club—Exhibitions—An Old Saw—The Street Urchin and Photography—Boston Police and Sunday Photography—A Visit to an East-End Photographer's on Sunday—The Crystal Palace Challange Cup—Diplomas and Fees—Artistic Tours in Italy—The Route—The Blackheath Exhibition.

Leader.—A Standard Light.—III.

Letters.—Cheetham Photo. Soc. (Campbell)—Optical Lantern Formulæ (Perkins)—Plate Testing (Vindex)—Woolwich Exhibition (Shove)—Instantaneous Shutters (Anders, Forbes, R.W.J.)—A Question Book (Pilditch)—Twin-Lens Hand-Camera (Enn Ess)—A Personal Explanation (Hinton)—An Anachronism (Birch)—Test for Hypo (Fraser).

Exhibitions.—Paisley.

Articles.—The Angle Formulæ (Rice)—The Legitimate in Photography (Hinton)—On the Comparative Advantages of the Wide-angle and Tele-photo. Lens (Dallmeyer)—Pictures and Picture Making (Mummery)—Ehrmann's Combined Toning and Fixing Bath—Glamorgan Photo.Survey—Cyclo-Photography (Roadster).

Reviews.—"Anleitung zur Photographie"—"The Year Book of Science."

Holiday Resorts.—Scarborough (G. L. S.)

Apparatus.—The Askew Lantern Box.

Societies' Meetings.—Accrington—Aston—Birmingham—Birmingham (Union)—Bolton—Bristol—Brixton—City of London Eastbourne—Guildford—Hackney—Leeds—Liverpool A. P. A.—Louth—N. London—Nottingham.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addreased to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Lantern-Slide Competition, No. 45.—Latest day, March 11th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, March 24th, 1893.)

We would remind our readers that the public meeting anent the New Central Photographic Club will take place on Monday next, March 6th, in committee room No. 16, Memorial Hall, Farringdon Street, and we trust to meet many there. So far the scheme has met with unexpected and universal support.

* * *

February has been in the running for the record month for exhibitions. Many of the pictures one meets in the open classes of one exhibition invariably turn up in nearly all the others, and the alternative position some of them take in the prize list is a curious fact well worth studying, the picture that was beaten in one exhibition taking precedence of its successful rival in another. *Sic transit gloria mundi.*

* * *

The old saw, "There's many a slip 'twixt the cup and the lip," is never more forcibly brought to mind than after a negative which has been developed and found to be a "sparkler' eventually gets a portion of the film scratched off.

* * *

The street urchin ought by this time to have known an amateur's outfit when he sees it. But it seems that this marvellous knowledge has not yet spread to the extent it should have done, for how otherwise do we account for the remark of "Give us a fish, guvnor!" which has been addressed to photographers more than once?

* * *

The chief of police in Boston, U.S.A., threatens that he will put in force a regulation prohibiting photographers from working on Sunday, and naturally some of the proprietors of the local studios object, and are up in arms about it.

* * *

It was our fate some little time back to have to call on a professional in rather a poor working-man's neighbourhood, and chatting on various subjects with him we inquired about business, adding, "Things don't seem lively to-day?" "Oh! no," was the answer; "come up on Sunday, and we'll show you how we can and do work." After some pressing we did go, and certainly were astonished at the curious varieties of the human race, the numbers which came, and the method of working.

* * *

Downstairs was the reception room, with what had probably been once velvet-covered lounges all round. Now, alas! time, use, and plenty of grease had dimmed their pristine beauty; they were to us things to look on, not to sit on. A lady of commanding voice but small stature took the money and gave the applicants duplicate tickets.

There were plenty waiting, always some going upstairs and others coming down. Here there was a group, evidently of a wedding party, and not much shy bashfulness about either the bride or bridegroom, as they stood with their arms round one another's waist. We casually wondered whether they were "to be took" like that. Certainly a colour-sensitive plate would be required to faithfully portray all the exquisitely glaring combinations of colour which the bride wore, and the magnificent hat, hired, so we were told, for the occasion for half-a-crown.

* * *

Of course, the bridesmaids and groom's men were there, and to while away the tedium of waiting they indulged in various jokes which caused considerable laughter and noise, but which was soon stopped, however, by the lady of the reception room.

* * *

Upstairs we found three operators hard at work—one posing (heaven save the mark!), another exposing, and another filling the dark-slides. All the exposed plates had a ticket stuck on the back, and were left till Monday for development.

* * *

There was not much time wasted. "Next, please: sit there and look at that picture—one, two, three, four. Thank you; next, please." All three operators had their coats off, and as smoking was evidently the order of the day, all we could do was to smoke, look on, and admire the admirable order and good temper shown.

* * *

How long we were there we must not divulge, but certainly we saw more plates exposed than in any like period before or since. If any such regulation, and we believe there is an old law on the subject, were put in force in England, it would certainly come hard on many of our professional brethren.

* * *

The Crystal Palace Exhibition authorities offer a National Challenge Cup for the best society exhibit. The following are the rules and regulations:—

(*a*) All pictures entered in this competition shall be subject to the general rules and regulations wheresoever applicable.

(*b*) The Challenge Cup Competition shall be confined to recognised photographic societies within the United Kingdom.

(*c*) An entrance fee of half a guinea will be charged.

(*d*) Pictures entered for competition shall be eligible for award in their several classes, provided a separate application form be filled up by the exhibitor, and the conditions of rule 4 (see prospectus) are complied with.

(*e*) The number of pictures entered by any one society shall not be less than fifty, or more than one hundred. The awards will be made upon the merit of the work sent in, irrespective of the number contributed.

(*f*) The cup shall be handed over to the Mayor or other public functionary of the town or district in which the head-quarters of the successful society are located, or to the President of the society for the time being, to be held by him in trust for a period of one year, at the expiration of which it shall be returned to the Crystal Palace Company. The cup shall become the absolute property of the society winning it thrice in seven years.

(*g*) Lantern slides and transparencies are not eligible in this competition.

(*h*) All pictures must be delivered at the Crystal Palace, carriage paid, on or before Wednesday, 5th April (see rules and regulations in the general prospectus).

Note.—The Secretaries of societies are requested to furnish an alphabetical list of members competing, with the full title of their respective pictures, in order to ensure insertion in the first issue of the Exhibition catalogue. All correspondence and inquiries to be addressed to the undersigned at the Crystal Palace, London, S.E. —Renshaw Russell, Manager.

* * *

It will be noted that a diploma is offered for all those societies whose work shall merit that distinction. We note also that there is an entrance fee of half a guinea.

The particulars of the artistic photographic tour to Italy, noticed in our issue last week, were incorrect, as we understood that it was under the management of Messrs. Gaze; this, however, is not so.

* * *

An advertisement of the same appears on page xi., from which it will be seen that the party will go *via* Mont Cenis, visiting Dieppe, Paris, Turin, Genoa, Pisa, Florence, and Rome, and calling at Bologna, Venice, Verona, Milan, Basle, and Paris on the route home, which will be *via* Chiasso and St. Gothard.

* * *

It is proposed that half-plate and hand-cameras only should be taken and no other impedimenta, the organiser of the trip supplying, included in the fee, six dozen half-plates of a good make.

* * *

The Blackheath Camera Club Exhibition opens on Friday at four p.m., and will be open all day Saturday till ten p.m. We hear that the entries from well-known workers are very numerous, and that a fine exhibition is expected.

A STANDARD LIGHT.—III.

Taking the lights suggested in our last article in order, we find that the standard candle is the first to consider. These should be sperm candles, of which six should go to the pound, and the hourly consumption of the same should be 120 gr., and the height of the flame be $1\frac{3}{4}$ in. No one will, for one moment, suppose or ask us to believe that it is easy to keep the height of the flame constant and, as it should be, the wick in the middle of the flame and upright. Provided the consumption is calibrated and all care taken, it has been found that the variation of the light is from 5 to 10 per cent.; and should this be the case, we might admit that for photographic purposes, such as testing plates, this variation is not of much moment, as such an error as this might be and is doubtless made in exposing without ill effects.

When we come to examine the light emitted by a standard candle, however, in the spectroscope, we find how very poor it is in those rays which are so active in photography—viz., the blue and violet—in fact, it is not much exaggeration to say that there are practically no violet rays emitted.

Violle's light unit is, unfortunately, as even admitted by the International Photographic Congress, by no means convenient for universal use, and this has also a spectrum which is as rich in the blue and violet, and as poor in the yellow and green, as the candle was wrong in the opposite way.

The amyl-acetate lamp is also dependent for uniformity upon a definite height of flame, diameter of wick, etc., and, as pointed out by Eder ("Sitzber. d. Kais. d. Wissensch.," Wein, II. Abt. 1885), gives practically a spectrum the same as the candle—namely, rich in yellow, but poor in blue and violet rays.

Bunsen's and Roscoe's carbonic oxide flame is a trouble to prepare, and the flame is a very pale blue which may be said practically to emit no yellow rays at all, and would, therefore, be of no value considering that such rays do exist in ordinary daylight.

Coal gas, certainly from the consideration noted in our last article, little claims to be considered as a standard light; but it is only fair to point out that Eder ("Handbuch der Photographie," vol. i., Heft. 2, p. 360) says:—

"Coal gas is allowed to issue from a pipe (a brass pipe with platinum nipple) with an aperture of 1 mm., light it and regulate the supply of gas so that the height of the flame is 68·4 mm. ($2\frac{3}{4}$in). With this light one exposes photographic plates under a scale photometer, etc., the degrees of which have a known value (*e.g.*, a Vogel photometer) at a distance of 1 m. (= 39·37 in.) for a predetermined time (gelatino-bromide plates for $\frac{1}{4}$ to 1 minute). The plate should then be developed. The intensity of the flame of a coal-gas single-hole burner of a given height is, as pointed out by Giroud (*Journal fur Gasbeleuchtung*, 1880, p. 700) constant even when the illuminating power of the gas varies 15 per cent. The illuminating power of a one-hole burner of 67·5 mm. height is equal to one-tenth of a Carcell lamp = 0·96 of a sperm candle = 0·983 of the German standard candle; if the height of the flame is 68·4 mm., the illuminating power = 1·00 of the English standard candle. The author has made experiments with this burner, and found, in fact, during the time of observation of several hours, sufficiently constant results."

In the same paper as mentioned above by Giroud, the author states that he has found that with the same gas and same aperture of burner the height of the flame of the one-hole burner is directly proportional to the consumption of gas; and, further, that for different gases and the same height of flame the consumption is in inverse proportion to the illuminating power of the gas. It might therefore be possible to construct a light on this principle which should be constant, only gas has also a spectrum value totally different to that of daylight.

Magnesium in the shape of ribbon, if pure, free from zinc or iron and oxide, might be used as a standard light, provided a given weight of it was burnt, and there was not the troublesome magnesia floating about to partially absorb and reflect the light, and the effect of such "smoke" has been pointed out by Dr. Stolze in the *Photographisches Wochenblatt*, 1883, p. 155.

Phosphorescent substances we need hardly consider. They are very poor in red and yellow rays, and totally unreliable.

There are now left for consideration the pentne argand, which is, we believe, the new standard light to be adopted by the Board of Trade, and the use of some incandescent gas system, to which we hope to recur next week.

Letters to the Editor.

CHEETHAM PHOTOGRAPHIC SOCIETY.

Sir,—The above Society is now in process of formation in the Cheetham district of Manchester, and should any amateur in this vicinity be desirous of joining the above, I should be pleased to give him any information relating to the same. Hoping you will insert this communication in your next issue, I am, yours, etc.,

T. Campbell, Secretary.

46, Thirlmere Street, Cheetham, Manchester.

* * * *

OPTICAL LANTERN FORMULÆ.

Sir,—It may be well to point out that the formulæ quoted from the *Magic Lantern Journal* on page 130 of your issue of February 24th, though giving results near enough for practical purposes, are not strictly accurate, unless A be taken not as the *focal length* of the lens, but as the distance of the slide from the nodal point of the lens when focussed so as to throw a sharp picture on the screen. The further off the screen is the more nearly does A approach to the focal length of the lens, but unless the screen be at infinity, A will always be greater than the focal length.

In fact, the rule quoted is equivalent to giving the rule for enlargements on page 129, with the omission of the words "plus one," which is manifestly incorrect.—I am, yours, etc.,

T. Perkins.

* * * *

PLATE TESTING.

Sir,—In your editorial on "A Standard Light," you seem to doubt Mr. Cadett's statement *re* isochromatic plates obeying same H. and D. constant as ordinary plates. Permit me to state my experience. I have found Mr. Watkins' speed numbers fairly reliable, and his ratio number for the H and D. speed ditto. Now, all last summer I often used Isochromatic and ordinary plates of the very same make (Ilford), and on the same subject, chiefly, I admit, well in the middle of the day, but I never could detect any difference in the negatives. No doubt, with the use of a screen, this would be different.

I may here also aver that I have now been a constant user of the Hurter and Driffield actinograph for over eighteen months, and declare that it has, in conjunction with all plates having their speed numbers attached, been of such immense value that henceforth I shall purchase no plates without they carry the H. and D. speed number. The method of their use in ordinary negative work and the production of lantern plates and transparencies, is the most beautiful and exact scientific method ever devised, and if Messrs. H. and D. can but give us a meter as exact, photography will become child's play.—I am, yours, etc.,

Vindex.

* * * *

WOOLWICH EXHIBITION.

Sir,—I do not wish it to be thought that I infer that the awards have not gone to the deserving pictures when I say I have a complaint to make about this exhibition. One rule is that pictures that have gained awards from journal competitions are not debarred from competing, but I do not think that these pictures should have entered section 4, which is open to amateurs who have never received an award in open exhibition, but should have entered section 3, which is open to all amateurs, as also should several other competitors in section 4 that have taken more than one medal before. And that is not all, there is *one* picture to *my* knowledge entered in that section that has received a medal other than in journal competitions, viz., 125, which gained a medal at a society's exhibition only a month or so ago, and should, of course, be debarred from entering any class. Although none of these pictures, so far as I know, have been successful in this exhibition, and although I am not an exhibitor in this competition, I do not think it right that they should have entered section 4. If all these medal winners are allowed to enter this section, why did not Mrs. S. F. Clarke and others enter the same? They properly entered section 3.—I remain, yours, etc.,

W. Shove.

* * * *

A QUESTION BOOK.

Sir,—At a meeting of our council it was proposed that a question book be kept. I suggested that any photographic questions that could not be answered forthwith should be handed in to me, and I would enter them in the aforesaid volume, which would be placed on the table, and the query replied to by some of our abler members, such answers to be discussed at a future meeting, and the best entered opposite to the proposition. In due course a compendium of useful information would result.

My purpose for encroaching upon your space is to see if other societies would take up the matter, so that at a subsequent date a temporary interchange of these records could be made.—Thanking you in anticipation, yours, etc.,

133, Wills Street, Aston. Fred. W. Pilditch (Hon. Sec.)

* * * *

TWIN-LENS HAND-CAMERA.

Sir,—The changing box applicable to the camera alluded to by "Royal Mail" is that made by Adams and Co., Charing Cross Road.

The diaphragmatic shutter, which is one of the ever-set class, was simply alluded to *en passant*, the idea of the paper being rather to lay down general lines upon which to construct a twin-lens hand-camera than specific terms applicable to but one class of lens, shutter, etc., etc.—Yours, etc.,

Enn Ess.

* * * *

INSTANTANEOUS SHUTTERS.

Sir,—It appears to me that "C. P." is quite right in what he says in respect to blind shutters. Not having a roller-blind shutter I have been unable to try the writer's way of comparing both shutters, ordinary and roller-blind, but, as "C. P." says verily, in a roller-blind shutter every part of the plate is exposed one after the other, as with the other the whole plate is simultaneously exposed.

Although only an amateur, I think I can discern that "C. P.'s" letter is full of common sense.—Yours, etc.,

D. B. Anders.

Sir,—I have read with great interest the letter which appeared in your last week's paper relating to instantaneous shutters. I think the reasoning perfectly correct in every respect, and I think "C. P.'s" way of testing two shutters very ingenious and clever. It is a pity that no one has had before now the good idea of comparing the two different sorts of shutters. Following "C. P.'s" method, I have likewise compared them, and have got the same results as he did. This is, I think, a very important matter for hand-camera workers, and I being one myself shall certainly stick to my old Thornton-Pickard, thanks to "C. P.'s" advice.—Yours, etc.,

K. Forbes.

Sir,—"Density" may be a good quality in a negative, but I must confess to a certain amount of this characteristic; which is not good, because I fail to see how the letter of "C. P." forwards the elucidation of a rather difficult question. Here we have a "doggie" jumping over a stick, held at some height, x, from the ground, the "doggie," a mass of size y, and two shutters working at speed

So we have three unknown quantities, and no known quantity, which is irritating and perplexing, and what is worse, presents an unsolvable problem. Then, in addition, there is a statement of an impossible thing—"with the other sort (of shutter) the whole of the plate is exposed at once." This is just what no shutter does, or is even likely to do, though an approach may be made towards this desirable consummation. As a little help in the direction of correct timing of quick shutters, suppose we take something of which we do know the speed—a falling body. Let it be an indiarubber ball, 6 in. in diameter, painted white, and falling in front of a black-board, or a dark wall distinctly marked in some way into feet and inches. This ball will fall 16½ ft. in one second, or 198 in.; within one per cent. of 2 in. in the one-hundredth part of a second. This is a measurable distance even on a quarter-plate. Of course the ball does not commence to fall at this rate, nor does it complete the last foot of its descent at this speed. The motion is constantly accelerated, but probably the shutter has to be made which would show it very clearly. The practical way to set to work suggests itself. Make, say, three exposures at different periods of the fall at 4, 8, and 12 ft., and take the average. About a year ago someone made twenty-five exposures by means of a revolving shutter, while a ball fell 16½ ft. and rebounded. The result was a series of distinct balls, down to about 12 ft., when they almost merged into a long streak. On the rebound at first there was the crowding of the balls, and then, as the speed decreased, the single balls again appeared—of course only one ball was used. This may, I hope, prove useful. I forgot to mention that a "doggie" might be used to bark and wag his tail at critical times, for instance, when the sphere starts, and when it reaches the ground.—Yours, etc.,

R. W. J.

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A PERSONAL EXPLANATION.

SIR,—So many photographic friends have for some years past corresponded with me at 45, Charterhouse Square and 91, Gracechurch Street, London—the photographic businesses of Messrs. H. B. Whittingham and Co., Limited (late the Photographic Artists' Co-operative Supply Association, Limited)—that I shall greatly esteem your kindness if you will spare me space to make known that I am now no longer in any way connected with the above business.

For your own information I enclose a card of my future business address.—I am, yours, etc., A. HORSLEY HINTON.

Villette, Leytonstone.

* * * *

AN ANACHRONISM.

SIR,—I cannot allow Mr. J. W. Huggins' letter to pass without thanking him for answering my questions so courteously, though he fails to convince me, and so I suppose we must agree to differ.

At the same time I think that my allusion to the stage was relevant, in that the stage so far resembles a picture of any kind, that to enjoy either one must overcome the (*not* inevitable) "feeling that we know it is not what it claims to represent, but . . . a masquerade," or rather the outcome of the art of the painter or actor, or even of the photographer.

I would also like to gently hint that "disregard for exactness in detail," and "loose orthography," are not confined to the age of the "old masters," but crop up even in late numbers of the AMATEUR PHOTOGRAPHER, especially in the spelling of names.—I am, yours, etc., WALTER DE H. BIRCH.

* * * *

TEST FOR HYPO.

SIR,—The following delicate test (which I very recently discovered) for the presence of hyposulphite of soda may prove useful to many of your readers who, when washing prints and negatives after fixing operations, may be anxious to know when the hypo is eliminated, thereby saving an unnecessary prolonging of washing operations. It will also serve to convince any doubtful ones of the efficacy of frequent changes of water immediately following the fixing. A weak solution of Condy's fluid (such as is used in every household for cleansing and disinfecting purposes), say, 1 dram to a tumbler of water, will give a beautiful crimson colour. This will become changed to a *dingy brown* upon the addition to it of a drop of hypo solution of the strength commonly used for negatives or prints. If more be added the Condy's solution will become *colourless*. By this test I find that Solio prints are thoroughly washed at the end of two hours, it being understood that the water in which they are washed is changed several times during the first ten minutes.—Yours, etc., JOHN FRASER.

[Condy's fluid is a permanganate solution, and therefore the above is merely the old permanganate test so often recommended. It is, however, useful to be reminded that a common household requisite may be used in this way. We would point out that it is always advisable to use distilled water, or the impurities in the water may mask the delicacy of the test.—EDITOR.]

Cyclo-Photography.

BY ROADSTER.

THIS is essentially an age of progress. Englishmen and Englishwomen of the present day are gradually but surely advancing both in mental and physical improvement, notwithstanding the lamentations of pessimists, and their solemn declarations that the world is going to the dogs.

It is not my province to speak in a journal devoted to the interests of photography of all the various phases of this progress of civilisation; I propose, therefore, to dwell for a few moments upon one of them only, viz., what I may call "Cyclo-Photography."

It is not so very many years ago that the spectacle of an individual armed with a peculiar three-legged instrument and a box (the pioneer of the present ubiquitous amateur) created as much open-mouthed astonishment combined with amusement as the sight of a rider of one of the boneshaking "Ordinaries" then in vogue. These two kinds of recreation have now grown to such an enormous extent that the old-time "likeness man" and "bicycler" have eventually become national institutions. There are many cyclists of the present day lovers of the camera also, and these are to be often seen in the highways and byeways of old England, snatching here a view and there a view, to remind them in days to come of the pleasant hours spent in company with their camera and their "wheel."

My object, however, in writing this article is to point out to those amateurs who have not yet tasted the pleasures of cycling, how the two accomplishments (if I may use the term) go hand in hand, and to offer a few suggestions to those who may be inclined to give the subject serious consideration.

In the first place, it is obvious that an individual of either sex (for be it known the ladies are now great riders), when mounted on the trusty iron steed, can penetrate to the innermost recesses of every bit of country open to the public, when all other conveyances may fail, or may only come within several miles thereof. He can roam hither and thither at the dictates of his own sweet will in search of pictures, and he has four times the range in which to find them, assuming that he would otherwise travel to a certain selected spot by train, and then walk from place to place. The first thing esential is, of course, a light and portable camera and tripod, Several makers have already directed their inventive genius in this direction, and have now on sale what they call a "Cyclist set." The hand-camera (which is carried screwed on to the handle-bars) is getting somewhat into favour; but there are several objections to this, one of them being that the slight vibration which is evident sometimes even in the best of pneumatics, shakes the plates and causes the irritating pin-hole fiend to appear. The best way to carry the camera is slung across the shoulders, for the body, acting as a non-conductor, destroys all vibration, and if the camera be a light one it will not inconvenience the rider in any way. For this purpose the quarter-plate is the most suitable; but if a bigger picture be required, enlarging can easily be resorted to; while the troubles of lantern-slide making are reduced to a minimum. The tripod should be strapped to the handle bars, with a couple of pads intervening to prevent rattling or jarring. I remember coming home from my first spin with the camera, and finding that a hole had been worn in one of the legs of the tripod. I afterwards always resorted to the pads mentioned.

I need not enter into a discussion as to the physical benefits of this combination. Without becoming either a hairbrained "scorcher" or a camel-backed "mopper-up," a glorious ride of fifty miles could easily be covered in a day, many a pretty wayside "shot" of places almost inaccessible by any other means being obtained *en route*. Cyclists as a general body are considered to be utterly devoid of any artistic sentiment, and their only object to be the piling up of mile upon mile to their credit. Whilst this is undoubtedly true with regard to a great number of wheelmen, yet there are some who do care to linger in the midst of a pretty piece of sylvan scenery, far away from the madding crowd, often wishing they could carry away with them a picture of it in all its beauty. To these and to others of a similar nature cyclo-photography recommends itself. It is yet in its infancy. There is not the least possible doubt that within the next year or two it will gain for itself very many additional followers, and that we shall have to celebrate the nuptials of the camera and cycle.

* * *

Prints on Rough Paper.—Although the value of perfect sharpness given by a perfect lens has not been lessened, recent exhibitions have shown that for certain purposes selective focussing and printing on rough paper yield most charming pictures.—"*Photo-Beacon*," *January*, 1893.

Angle Formulæ.

FOR FINDING THE ANGLE INCLUDED ON ANY PHOTOGRAPHIC PLATE BY A LENS OF ANY FOCUS.

By William Rice,
Vice-President South London Photographic Society.

I.—*For angles not greater* than* 90°.

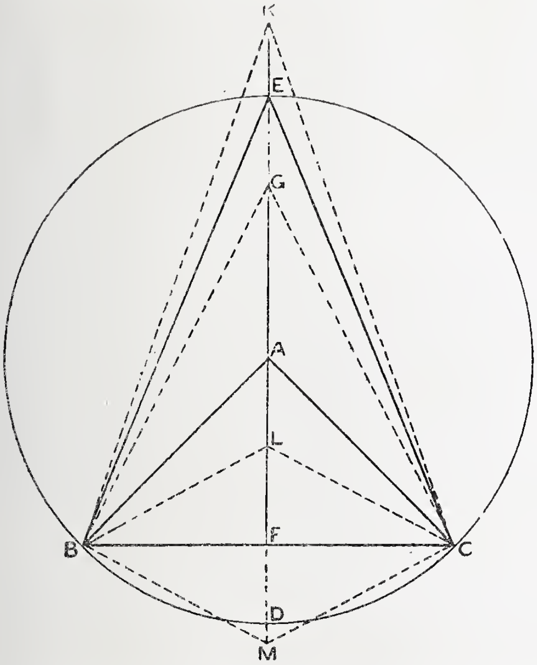
If P represent length of plate and F equivalent focus of lens,

$$\text{Angle} = \frac{63P}{F+\frac{P}{5}}.$$

II.—*For angles not less* than* 90°.

$$\text{Angle} = 180° - \frac{126F}{\frac{P}{2}+\frac{2F}{5}}.$$

Mathematical Construction and Proof.



Euclid, Book III., Prop. 20, demonstrates that "*The angle at the centre of a circle is double of the angle at the circumference, upon the same base; that is, upon the same arc.*"

Therefore, in the above figure, the angle BAC is double the angle BEC.

As the line ED, terminating in the point E, is double the line AD, terminating in the point A—the one being the diameter and the other the radius of the circle—we have two lines which are proportional (inversely) to the angles BEC and BAC.

But the line AD is equal to the line AC, each being a radius of the same circle; therefore the line ED is equal to the sum of the lines EA and AC.

If we construct the triangle ABC so that the angle at A is 90° (which is done in the above figure by making the perpendicular AF half the length of the base BC), we get a unit of measurement for all angles formed by lines drawn from B and C to any point in EA, as G, or in AE produced, as K.

The angle BGC bears the same ratio to 90° as the line AC bears to GD (or $GA + AC$).

The angle at G is therefore $\frac{90° \times AC}{GA + AC}$.

But the line AC can be expressed in terms of AF and FC, being $\sqrt{AF^2 + FC^2}$ (Euclid, Book I., Prop. 47); and, as AF and FC are equal, by construction,

$$AC = \sqrt{AF^2 \times 2}.$$

If, for example, we make the base BC 20 inches long, FC and AF will each be 10.

AC, in this case, will be $\sqrt{10^2 \times 2}$ or 14·142 inches. Taking the whole numbers only, and omitting the decimals* we can express AC as $\frac{14}{10}$ of FC, or as $\frac{7}{10}$ of BC.

The line GA + the line AC can now be expressed as

$$GF + \left(\frac{2}{5} \text{ of } FC\right), \text{ or as } GF + \left(\frac{1}{5} \text{ of } BC\right).$$

Therefore the equation $\frac{90° \times AC}{GA + AC} = \frac{90° \times \left(\frac{7}{10} \text{ of } BC\right)}{GF + \left(\frac{1}{5} \text{ of } BC\right)}$.

Now, if we take BC to represent the length of a photographic plate, and call it P, and GF to represent the focus of a lens, and call it F, the angle will be

$$\frac{90° \times \frac{7P}{10}}{F + \frac{P}{5}} = \frac{630P}{10\left(F + \frac{P}{5}\right)} = \frac{63P}{F + \frac{P}{5}}.$$

The formula for angles *not less than* 90° is constructed as follows:—

Let us suppose we have a lens the focus of which is *less* than half the plate, as LF. First produce LF to M, making FM equal to LF, and join BM, BL, and LC.

Now, although we cannot, by the above formula, find the angle BLC, we can find the angle MBL.

In order to do this we must look upon ML as the base of our triangle, and BF as the perpendicular.

Therefore, what before was half the plate must be considered the focus, and what was the focus must be considered as half the plate.

Taking the original formula $\frac{63P}{F+\frac{P}{5}}$, we make the following substitutions:— $\frac{P}{2}$ for F, and $2F$ for P.

The formula will now stand

$$\frac{63 \times 2F}{\frac{P}{2} + \frac{2F}{5}} \quad \text{or} \quad \frac{126F}{\frac{P}{2} + \frac{2F}{5}}.$$

This does not give us, however, the angle BLC, but the angle MBL; but as the three angles of every triangle must together equal two right angles, *i.e.*, 180° (Euclid, Book I., Prop. 32), the angle MBL must equal 180° less the sum of the angles BML and BLM. But the angles BML and BLM are equal to each other, the triangle BLM being isosceles (Euclid, Book I., Prop. 5); therefore the angle MBL is equal to 180° less twice the angle BLM. And as the angle BLC is double the angle BLM, the triangles BLM and CLM being similar in all respects, therefore this angle is equal to 180°—the angle MBL.

We have found the angle MBL to be equal to

$$\frac{126F}{\frac{P}{2} + \frac{2F}{5}};$$

therefore the angle BLC

$$= 180° - \frac{126F}{\frac{P}{2} + \frac{2F}{5}}.$$

Q. E. D.

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Collotype at Morgan and Kidd's Works.—The *British and Colonial Printer* has a well-illustrated article on the working of collotype by Messrs. Morgan and Kidd, and contains the article which appeared in our issue of February 3rd.

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* An angle of 90°, which is given by a focus equal to half the length of plate, may be calculated by either formula.

* The omission of the decimals, of course, introduces a slight error in the formula, but as this will not amount to more than a fraction of a degree, it will be sufficiently exact for all practical purposes.

The Legitimate in Photography.

By A. Horsley Hinton.

(*Continued from page* 113.)

Now it appears to me that the whole question is as to what we regard the photograph to be. If we are only regarding it as an example of what a particular lens, or plate, or printing paper will yield, if we are examining photographs in order to ascertain what wonderful properties certain materials possess, and judging in what degree one operator has excelled another in making the best use of these materials, and thereby demonstrating his knowledge, his skill, and craftmanship, then all well and good—hand work must be rigidly excluded, for we want the best evidence of what can be effected by the particular process adopted. Or if it be ruled that the demonstration of greatest photographic skill is to be sought and rewarded, then it must be remembered that the correct representation of the most uninteresting of subjects must in competition rank equally with the most fascinating and beauteous landscape or lovely portrait; but custom everywhere shows that this is not the case, and the most pleasing picture, true, as far as the judges can tell, to nature, is selected as the most meritorious.

Now it is clear that a photograph can only be disqualified for its hand work, if its presence can be detected, from which it follows that if the brush be sufficiently skilfully handled as not to show where it has been used, no one can quarrel with its use, and assistance will not be suspected.

My critic says he cannot pass such and such a print, because he can see it has been worked on, and it is just here in some sort (though from totally different reasons) that I can meet my critic and agree with him. I, too, must take exception to such a picture, because the use of a brush is so palpable. He objects because of some more or less fantastic and certainly arbitrary maxim which he sees disregarded; I, because the touches of the brush have failed to harmonise with the rest of the photograph; false in drawing, tone, or texture, they at once attract the eye as incongruous, and disturb the rest of the scene. Could we but have an altogether hypothetical dexterity, the entire surface of the print might be worked upon without the presence of such work being betrayed. But I would have it clearly understood that beyond a very little "washing" and "dabbing," minute touches or "stippling," it is *practically impossible for the brush or any other hand-controlled instrument to imitate the manner of the chemial image, or to properly blend with it*; and it is for this reason (that its imperfection makes it impossible to escape immediate detection) that painting upon the finished photographic image can only be practised to so limited an extent. Because of its technical failings in practice, not from its ethical aspect, should he discourage the touching-up of prints, or, at least, admit it with a caution.

To give a brief example, it may be possible or desirable to pass a brush charged with suitable pigment over a very white patch of water, and so tone it down in a manner quite impossible by any other means; or with a dot or a line some obtrusive object may be obliterated—be it a fragment of paper on the road-side, some inharmonious spot amongst the grass, or an insensitive mark in the sky. All this can be done, and advisedly, but attempt, though you be ever so able a draughtsman, to reconstruct a tree-top which a bad instance of halation has blotted out, or put in a clump of rushes, or a boat, where no such object existed, and the most casual observer will discover the difference. On negative or print, paint in, smudge in, some clouds, or dodge them with cotton wool, and the counterfeit will not need to be pointed out by an expert. Such methods are to be condemned, not because in themselves illegitimate, but that they will appear as representations of nature only to the most uncultivated eye.

And now what has been said will apply generally to "combination" printing. There are but very few nowadays who object to the use of a separate negative for the clouds in producing a landscape or seascape picture, and this probably because, with care and judgment in one picture, the two negatives can be so well united as to escape the suspicion of its dual origin. But if one negative *may* be used for sky and a second for landscape, who shall deny us the use of one negative on which are clouds and mountains, and a second for a foreground suitable to the first; and if two negatives in such a case, why not two or three or any number for each and every part of the composition? There seems no reason for drawing the line, but there must in every case be this condition imposed, that the negatives must be so harmonious in character and printed in combination in such a manner that truth to relative tone, perspective, lighting, and every other respect must be in no way violated, or must give a truthful impression to the spectator. Is such possible? Has it ever been done? And if so, how often, even by the most skilful, the most cultivated? How rarely does a combination print escape detection? Is there not always a more or less definable something which reveals the fact of the picture being constructed from two or more distinct plates, and is not that traitorous feature the very violation of truth which, because it occurs in the works of the best hands, has made some of us almost forbid combination printing, not because it is illegitimate, but impossible; not because it violates some laws as foolish, as tyrannical, but because even if the photographer possess such complete knowledge of nature as to detect the error when he makes it, the entirely truthful and successful combination of several negatives seems outside the range of practicability.

Finally, if we are to look upon a photograph as a picture in the same respect as a painting is a picture, then we can acknowledge no rules or regulations for its production, so long as the result is wholly satisfactory. We do not inquire whether the painter has produced this or that portion of his picture with the usual brush and painting medium, nor do we condemn the work because here or there he has scraped with the palette-knife, or dabbed or wiped with finger tip or rag. For the photograph which aims only at an artistic pictorial result there is no royal road for its production, and there is little fear but an excess of auxiliary assistance from other sources than the purely photographic will reveal itself and be its own condemnation.

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The Benevolent Association.—Meeting of committee was held in the rooms of the Photographic Society of Great Britain on February 20th, before and after the annual general meeting, Mr. Mackie in the chair. A letter from Mrs. William Bedford, acknowledging the Committee's expression of regret at the death of the late Mr. William Bedford, was read. Messrs. Robert Beckett, C. J. Emery, and P. G. Hunt were accepted as subscribers to the Association. Messrs. J. Traill Taylor, J. S. Rolph, and G. T. Harris were added to the Committee. Mr. Alexander Mackie was elected Chairman of the Committee in place of the late Mr. William Bedford, deceased. Seven applications for assistance were considered in full detail. It was decided that in three cases the applications could not be granted, but in the other four cases assistance in the forms of grants and loans to the extent of £24 16s. 6d. was given.

The biggest photographic enlargement ever made on one piece of paper has just been produced by Messrs. Morgan and Kidd. It is 8 ft. 4 in. long by a width of 4 ft. 5¼ in., and as a specimen of combined artistic taste and photographic skill this immense picture far excels anything that has ever been turned out by this firm. The work has been done for a well-known London photographer, who, we believe, intends showing it at the Chicago Exhibition, where we are sure it will hold its own with the biggest things (as our own cousin Jonathan would say) on earth. For some time Messrs. Morgan and Kidd have been erecting extensive plant and machinery, and enlarging their various departments to enable them to carry on their extensive business more expeditiously, and amongst other things the plant necessary for producing these large pictures has received their careful attention. They are now able to produce a picture up to the size above mentioned with as much correctness as if it was only an ordinary cabinet photograph.

On the Comparative Advantages of the Wide-angle and Telephotographic Lenses.

By Thomas R. Dallmeyer, F.R.A.S., Etc.

(*Concluded from page* 111.)

(2) *Mathematical Perspective.*—Objects become smaller and smaller in appearance and nearer and nearer together the farther away they are. Thus streets appear narrower and narrower, and the houses lower and lower, the more distant they are. Parallel lines of all kinds, such as railway stringers, bridge timbers, etc., converge more and more to a vanishing point (Le Conte). Our judgment in the matters of size of objects, and degree of convergence of parallel lines, enables us to judge distance with great accuracy and almost without limit. Again, the size of an unknown object is judged by its angular diameter multiplied by its estimated distance. The retinal image of a given object, or the image of that object on a photographic plate, may have the same area covered by a larger object at a greater distance, or a smaller object at a less distance. In vision the estimated size of the object which produces the image will depend upon the distance we imagine the object to be from us. Thus estimates of size and distance are very closely related to each other, and an error in one would involve an error in the other.

It is important to note in this connexion that if we mistake the size of a known object, as, for example, a boy for a man, we shall to the same extent misjudge distance. It appears to me that this is the crux of the unsatisfactory images given by wide-angle lenses, or lenses of short focus when a near foreground is included. In viewing photographs taken by such lenses we never do, as a matter of fact, place our eye (or take our point of sight) at such a distance from the photograph that the angular dimensions of a foreground object and another object, distant, it may be, only a few yards further off, shall include the angles which mathematical perspective has rendered them in the photographic image.

Take the case of an ordinary interior. The figure of a boy in the foreground would be represented by a much larger image than that of a man at the further side of the room. To look at such a photograph from the ordinary distance of vision, say 10 to 12 inches, it would convey the impression that this room must be immense as regards its length that such proportions could possibly be brought about. Our knowledge of the comparative dimensions of the boy and the man is such as to make the treatment of the latter not only disproportionate but ridiculous. The same argument applies to the unsatisfactory rendering of all architectural subjects in confined situation. Were it possible to remove the point of sight, or the camera, further away from the subject in the foreground, one would immediately bring about less disproportion between the sizes of objects in the foreground and more distant points of the subject. We value short-focus lenses on account of their adequate depth of definition through receding planes, but their perspective, when including near foreground, never *looks right!* The painter-artist fulfils in his drawing what no lens yet constructed can do; he takes his point of sight at an imaginary distance, anywhere further back from where he is forced to stand (if he finds it necessary)—at a distance, in fact, that his knowledge teaches him will practically put all his facts in the picture more nearly in the same place, so that the picture as a whole will look right, as, for instance, the daisy that he is painting in the foreground may really include an angle as large as the lady's foot some distance away, but he does not draw it as it actually is in mathematical perspective dimensions, but in his mind he makes that daisy go away and keep its relative size as a daisy to a human foot. This, from a near point of sight, the camera cannot do. If one were enabled to get far enough away to make such a subject more nearly on one plane, and so look right, it would, as a rule, be so small in size as to be useless. The advantage of "long focus" lenses, or the more extravagant form, the telephotographic lens, may now come in where a sufficiently uninterrupted and satisfactory view of any subject can be obtained. Distant groups of cattle, villages, architectural structures, etc., can thus be well illustrated, for although they are considerably distant, the size of the images is such that they do not become insignificant.

Example.—Take an interior 50 ft. long, or a group 50 ft. deep. Say nearest figure 10 ft. and farthest 50 ft., and take both figures as 6 ft. in height. With a lens of 10 in. focus the dimensions of the near and distant figures are 6½ and 1¼ in. respectively, or a proportion of 5 to 1. The same subject with the lens removed 50 ft. from the first figure (and, therefore, 90 ft. from the furthest), would give the dimensions of the figures as 1¼ and ¾ in. respectively, or a proportion of only 5 to 3. A longer focus lens, viz., 50 in., at the greater distance would maintain these more reasonable proportions, and also give the same absolute size, viz., 6½ in. to the foreground figure as in the first case, but a proportionately larger image to the distant figure, viz, 4 in. Now, a telephotographic lens, to give the equivalent of 50 in., would only require an ordinary camera extension of from 12 to 15 in.

Another interesting comparison between wide-angle and telephotographic views arises from the fact that we almost invariably look at the former from a greater distance than that of the focus of the lens with which it was taken, and at the latter from a less distance than that of the corresponding focus of the lens. So that wide-angle views may be said to be seen through a magnifying glass, and telephotographic views through a magnifying glass.

The other aspects of mathematical perspective are those of *outline form* and *solid form.* As we have but little to do with the latter in photography, we had better dispense with this first. In sight we judge of it chiefly by binocular perspective, but we also judge of it by light and shade. Light and shade are admirably rendered by photography. Binocular perspective comes into play very much more for near objects than for distant ones, and hence the illusion of solidity produced by the painter is most perfect *at a distance,* where binocular perspective is very small. In all photographic work one main feature has been its paltry and insignificant rendering of distance, but I think it will be agreed that telephotography has overcome this drawback, and placed the illusion that is most easily carried out by the artist within the reach of the photographer.

For reasons already stated, *outline form* is most unsatisfactory in photography when near objects are depicted at the sides of a picture taken by wide-angle lenses. We have seen that the drawing given to such objects is in strict accordance with monocular perspective, and this can easily be proved. No doubt many will remember this illustration of Mr. Debenham's vase (*British Journal of Photography*, October 30th, 1891). Looked at in the ordinary way it appears to be entirely out of drawing, although viewed under the necessary fixed conditions described, the vase can be made to assume its proper shape. The unsatisfactoriness of such outline form in photography is so palpable as to make some subjects impossible in pictorial work. Take an ordinary interior with, say, an old couple one side of the room and a young couple at the further side. The necessary distortion brought about by a wide-angle lens could pay but a poor compliment to the features of those it depicted.

(3) *Focal Perspective.*—Monocular focal perspective again will have but a very small bearing on the subject. We are aware that if one eye be concentrated on some particular near object, that object is distinct, but all other objects nearer or further away become dim. This is perceptible within much narrower limits than that of binocular vision, and can only in a minor degree contribute to the question of the insistance of better definition for some part of the picture as compared to the remainder.

The fact that the exercise of focal perspective is comparatively imperceptible has an interesting bearing on photographs, in that it accounts for the more perfect illusion of depth and solidity effected when they are looked at with only one eye, as the perspective comes out a great deal more distinctly; and here we note the great contrast that there is in viewing natural scenes with one or both eyes. With one eye the reverse takes place to viewing the photograph, and we require both to fully appreciate distance and solidity.

In concluding, gentlemen, I fear I must admit that I have hardly adhered to the title of my paper, and also I am afraid I have had but little to say that is new, but I hope the subjects touched upon and the suggestions I have ventured to make may not be without interest to you, and may encourage photographers to include among their other studies that of "vision," for I am sure they will find it not only a most interesting one, but also one that I may say is absolutely essential to the production of the best work.

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Social Evening.—On 11th ult. the employes and friends of Messrs. Percy Lund and Co. held their third annual "social" in the Teetotal Hall, Bower Street, Bradford. Over a hundred persons sat down to tea, and a number of others joined them later in the evening for the entertainment which followed. The London branch of the business was represented by Messrs. H. Snowden Ward and W. C. Hay, and the firm's provincial travellers, Mr. F. Parkin from the north ground, and Mr. Spencer Warren from the south, were also present. Mr. Percy Lund presided over the entertainment, which was entirely sustained by the employes. The programme included songs and recitations; a mock trial, arranged by those taking part in it; several tableaux, and a vocal waltz which was received with enthusiasm and vigorously encored. Between the stated items of the programme a few games were interpolated for the younger folk, and the proceedings finished with a couple of verses of "Auld Lang Syne."

Pictures and Picture Making.*

By H. A. Mummery.

Of all the arts or sciences moving so rapidly forward in this nineteenth century of ours, none, I am sure, has made such wonderful progress as photography. From the times of the Dagnerreotype, with all its wonderful and awful operations, down to the age of "you press the button and we do the rest," has indeed been a mighty advance. But although the chemical processes and manipulation, the scientific portion, of photography has made such wonderful progress, there is another factor in the change which, from the point of view of the artist, is of far greater interest.

I have read in old books terrible tales of how quite innocent people have been tortured by being kept without food or drink for long periods of time standing against whitewashed walls in the glaring sunlight with a camera levelled at their heads. This torture was called the Daguerreotype, a process which, however successful as a scientific experiment, failed as an art. There is something inartistic about that polished metal plate, such a greedy devouring of every trivial and unimportant detail. It wanted to do too much—to show everything. Now, indeed, one of the great things in art is knowing what to subdue, or even what to leave out. Should I wish for a portrait of my friend I do not want the pattern of the wall paper or of the carpet, the carving on the furniture, or any other unimportant details to take the same place of importance in the picture as my friend's face. In so many photographs, not only in the older ones, but even in many modern ones, there seems lacking the most important thing in a picture, viz., a motive. I mean by motive the reason of our taking a picture, the something which soon catches the eye and makes itself central to the rest of the picture; but I shall speak of this later on. Now, since the days of the old photography a marked change has taken place which, as I have said before, is of the greatest interest to the artist. The change I refer to is in the artistic quality of the work; the processes and manipulation being now simplified and settled and no longer matter of experiment, there is free scope for the photographer to devote his energies to the artistic portion of his craft. Then again, when photography was emerging, it was carried on by many in a purely scientific spirit, but I think that to-day its many votaries follow it so earnestly because of the powers it affords for the making of pictures. Now, I think it is a very important fact that photography to-day is so intent on the making of pictures, not a mere representation of a place you have visited or of a place that has pleased you, but a picture—and that not by the selection of subject only, but by the deliberate and conscious direction of processes towards some particular end—this has lifted photography up to the rank of a fine art. The photographer has become, or can become an artist, because he is now able through his art to express his ideas of things; he makes his camera do as it is told, and it soon shows whether the man behind it has good taste or not. Now art is not the mere copying of nature, although this faculty is the stock-in-trade of the artist, the tool with which he works. We must, indeed, know how to represent rightly and faithfully the aspect of things, but although this needs a life-long apprenticeship, it is yet but the beginning of art, which is the expression of ideas about things, always glorifying and reverencing them. As the good grey poet says of the singer, "His thoughts are hymns of the praise of things," so too the artist is full of the praise of things, and selects, composes, and rejects until he has managed to say, "This is my idea of nature," the result of all my experiences, pleasures and pains, hopes and disappointments; the sunshine that has streamed upon me, the voices that have spoken to me have not been all in vain—see! I give them out again, plus myself. Art is the child born of the contact of nature and the human soul. Now, when you set your camera up and copied anything you came across, your work, however interesting, could not be regarded as art, but to-day you do so much more, you make pictures, and the mere fact that there can be so much difference between the pictures of the man of taste and those of the man of no taste argues well for us in regarding photography as a fine art, and it is about this making of pictures that I am to say a few words to you this evening. I, of course, shall speak only from the point of view of the painter, and having no knowledge of the many mysterious processes of your beautiful art must be excused from applying the truths which I shall try to enunciate.

I think the first thing in making a picture is the choice of a subject; this is really of tremendous importance, in it is clearly shown the character and temperament of the individual, and its successful accomplishment depends much upon the spirit in which we go to nature. Now, a young artist in choosing a subject naturally feels the limitation of his power, he tries to choose something that he thinks he can manage; but this is not the case with the young photographer, he feels no such qualms of conscience, his camera takes anything, therefore he is apt to level it at the first thing he comes across, quite regardless of whether it will make a satisfactory picture or not. Now, it is a very important thing to recognise the limitations of one's craft; not everything that nature spreads out before us and charms us with, when reproduced on paper will please. One of the most striking features of nature is multiplicity, the countless blades of grass and the leaves of the trees, or the many clouds in the sky; but yet if we come carefully to analyse our impressions there is a wonderful sense of unity; we find that masses of things impress us most. We are impressed by the grouping of the leaves or of the blades of grass and the *orderly arrangement* of the clouds in the sky, and true art always longs to recognise this massing or direction, and to show the great laws which govern it. The most conscientious artist finds that he must leave out something or other, and woe betide him if he leaves out any of the important things. How much the photographer is able to manage this process of rejection I hardly know, but, at any rate, he should endeavour to choose subjects which are as broad as possible, and should avoid all broken effects, glitter and flickering lights, and so on. Nothing, I think, is more pleasing in nature than spring-time, with all its thin leaves, flickering pale sunshine, shadow dappled grass under the trees, all touchy and spotty, so fresh and young, but it is difficult stuff to make pictures of—you are so apt to overdo it. Look always for things that are broadly and simply massed in their lights and shadows; they make good pictures, and will always look telling when placed among work that has more elaborate arrangements.

I should think it was a very difficult thing in photography, when you are choosing a subject, to overlook colour, so many things are pleasing and really compose by the arrangements of the colour, and when reduced to black and white will not pull together. I have seen really fine pictures in which everything depends on the colour, and which were practically composed by the arrangement of the colours; but you, of course, have to look for things which are interesting in their forms and tones. I mean by tones the relative lightness or darkness of objects, quite independent of their colour; these tones really give solidity in nature, one object picks itself out from its surroundings by the difference of tone. A good picture in black and white wants plenty of this, as it lacks colour. Often enough photography overdoes this, goes too much for violent contrasts, but we should notice how subtly nature relieves one object against another, so little difference in tone, and yet no blurring in the faintest tenderest distance, one object does not stick to another, you can disintegrate them. Well, look for subjects where there is enough contrast to be pleasing, but avoid very striking contrasts, as you are apt to exaggerate them. A gleam of sunshine across the country on a grey day is very bright indeed, but in the hands of the photographer it is apt to become too crude and glaring. Nature is always beautiful, but does not always deliver her charm to the artist, especially when his art imposes limitations on him. The master painters even had to pick out carefully what they wanted, had to ask themselves of the extent of their own powers. When you see some effect which pleases you, analyse it carefully, and find out whether it is that particular thing that pleases, or whether it is through combination with some other thing. Perhaps nature has been speaking to you all day, and you are full of impressions that contrast with what you see and that add something to the scene which is not really there. Nature takes it into her mind sometimes to make you very pleased with some comparatively unimportant thing which would be very difficult to make a picture of. This puts the poor artist off the track, and may cause some to go as far as Fuseli, and say, "Bother nature, she always puts me out." It is so difficult, even when you know your craft, to know what to do. Whether or no you are going to make good pictures depends very largely on the way you look at things. Do you really see more than the man in the street? You can mix your chemicals up, juggle your plates about, but what have you got to say, what do you want your works to say?

Art is the saying of something, and photography can say very much indeed, there is no doubt about that; there is a great deal in nature that photography can interpret perfectly when the man behind the camera is an artist, but when he is not—well, no matter. I am afraid I am wandering around wofully, but unfortunately the things I want to say are not to be said. We should be poor creatures certainly, if we did not have thoughts sometimes that we are not able to spin into words. We ought to keep something up our sleeves, and tell as we will. We cannot say all that nature tells us; still, the more you study nature, and study it reverently and carefully, the more you will feel your way on the road to the town of Art, which is but a little hamlet in the Land of Nature. Art is very much like Antacus of old, who renewed his strength whenever his feet touched his mother, the earth. We, too, are strong in our measure when we receive our impressions direct from nature, and not always at second hand; and our art is strong, too, when we strive to faithfully convey those impressions to others without loss of freshness or vigour. So many people go to nature with preconceived ideas, they look through other people's's spectacles and do not always see what there really is to be seen; there are cobwebs in our poor brains, and we look athwart them and fancy they stretch right across the sky—but it is clear enough to the open mind. I took a friend once into a beautiful valley and showed him a very fine bit of natural composition; he admired it after a fashion, but fancied a water-mill in the foreground would be an improvement. That man had not forgotten his school drawing copies. What could nature say to him? We must not go to nature with rules, but we ought to analyse everything that pleases us, and strive to discover the laws which govern that pleasure-giving, that we may seek such laws to rule over the work of our hands—our art. Composition is only the recognition of the laws of nature and the introduction of them into our work.

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* Read before the N. Middlesex Phot. Soc.

(To be continued.)

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Prof. Ehrmann's Combined Toning and Fixing Bath.

So much interest has been manifested in this excellent toning bath by Prof. Ehrmann, and the frequent requests for the number of the *Photographic Times* (September 2nd, 1892) which contained his description of it having exhausted the supply of that issue, we reprint it here, somewhat abridged, in compliance with a large number of requests:—

While conducting the practising class of Chautauqua School of Photography during the present extremely hot summer, it was found that the bath as originally prepared worked with much greater energy, and whereas during last winter it took from fifteen to twenty minutes to tone and fix thoroughly chloride of silver gelatine paper prints, toning was completed within four or five minutes, evidently too short a time to secure a perfectly fixed proof. To prolong toning, the chloride of silver of the original formula was left out; toning proceeded much slower in the beginning, without, however, rendering the tone as agreeable as with silver, and without the whites being as brilliant and pure as formerly. E. Valenta's formula for a reliable combined toning bath (see the *Photographic Times*, vol. xxii., page 343) appeared quite apropos, and it was concluded to give it a trial. The author's opinion, that when alongside of the formation of sulphide of silver, gold is also substituted for a portion of the metallic silver of the print, the result is permanent for all practical purposes, appeared reasonable and convincing enough to give the bath a trial. The formula is as follows:—

Water	500 cm.
Hyposulphite of sodium	200 gm.
Sulphocyanate of ammonium	25 gm.
Nitrate of lead	10 gm.
Alum	20 gm.

The bath is diluted with an equal volume of water, and to each 200 cm. added from 7 cm. to 8 cm. of a 1 per cent. solution of chloride of gold. With all that has been said in favour of the bath, it has not worked satisfactorily in my hands. In the first place, there is far too much lead in it. Bradfisch and Pierce's improved chloride of silver gelatine paper of decided acid reaction tones in it to a bluish-gray colour within less than four minutes. After subjecting from fifteen to twenty 5 by 8 prints to 24 oz. of the bath, it became frothy and thickish, toning proceeded still more rapidly, the gelatine film appeared to be in a state of dissolution, and after the washed print had been squeegeed upon glass, ebonite or tin-type plate, it adhered tenaciously and refused to strip off under any circumstances. Reducing the quantity of lead to one-fourth, one-sixth, and one-eighth prolonged the process of toning, but all other effects remained the same. Explanation to a part of the difficulties encountered was found in a recent number of the *Photographisches Archiv*, where it is stated that nitrate of lead, and still more so sulpho-cyanate of ammonium, is a powerful solvent for gelatine when at a temperature of 20 deg. C. (68 deg. F.).

Experiments have proved Herr Liesegang's assertions to be perfectly correct, with the exception, perhaps, that with the presence of lead nitrate and sulphocyanate of ammonium gelatine dissolves at still lower temperature than stated.

With these several experiments the practicability and reliability of the Valenta bath had become more than doubtful, and a reconstruction or modification of our old bath was resolved upon. Keeping in view what Valenta had said of toning with lead and simultaneously with gold, and that slow toning only can secure perfect fixing, I compounded a bath that has so far answered all possible demands. The tones produced are agreeably warm, the whites pure, not tinged yellow, fixing appeared to have been perfect, and a reasonable permanency of the print is hoped for.

Dissolve one pound of hypo in 32 oz. of water and 3 oz. of alum in 32 oz. of water. Allow to settle, heat to 120 deg., filter and add 22 gr. of nitrate of lead. To 20 oz. of this solution, add 5 gr. terchloride of gold dissolved in 2 oz. of water. With 20 oz. of this solution fifty 5 by 8 Bradfisch and Pierce's emulsion paper or an equivalent of larger or smaller dimensions, can be toned and fixed to perfection. After toning this number of prints the gold is exhausted, and the bath should not be used any longer. A well-printed-out picture tones in from twelve to fifteen minutes, sufficiently long to secure a thoroughly fixed print. When the tone of the picture begins to look purplish by transmitted light, no matter how the colour may be reflected, remove it at once in *running* water and continue to wash for about one hour, when the print may be dried or squeegeed. There is alum enough in the solution to harden the film, without resorting to an extra tanner, and carbonate of sodium before or after toning and fixing is not at all necessary. The finished prints have a beautiful deep purple colour and the whites are perfectly clear.—*Photographic Times.*

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Holiday Resorts.

SCARBOROUGH.

By G. L. S.

Scarborough has been called the "Queen of English watering-places," and if variety, both of scenery and amusement, counts for much, it certainly is. It possesses a bay like to that of Naples, and the coast scenery is very beautiful indeed. The beach is exceedingly fine and forms a happy hunting ground for the hand-camera man. For there may be seen the north country tripper, not the 'Arry and 'Arriett of the south, but, jovial with his open-mouthed remarks on place and people, he performs wondrous feats of horsemanship, as he rides solemnly along the sands in most extraordinary garments, his hands, which should be attending to the reins and whip, clutching also the mane of the animal he bestrides, and a large reticule crammed with food, a waterproof, and not unfrequently an umbrella as well.

Should, however, anyone prefer a quieter and smaller place, let me advise him to go to Filey, with its famous brig and magnificent bay. Filey possesses an old parish church (St. Oswald's), good sands, good cliffs, a freedom from tourists, and innumerable attractions to geologists.

Almost any point along the coast between Scarborough and Bridlington is easily reached by train, as also a great many places inland, such as Pickering, with its old castle, Malton, with its Roman camp and priory church, Castle Howard, the ruins of Kirkham Abbey and Castle, and York, with its minster, abbey, and castle. On a fine day, also, a pleasant trip can be made by steamer to Whitby and Bridlington, the view of Scarborough and Whitby from the sea being very pretty, while fishing boats are always ready for short excursions.

Within walking distance is the Carmelian Bay, three miles to the south of Scarborough. A mile further is Cayton, with a church of some interest, and a pretty bay. To the north is Scalby Mill, about one and a half miles distant, a charming valley with the Scalby Beck running through on its way to the sea. The walk should be continued to Scalby village, being well worth the trouble.

Very pretty scenes will be found at Haiburn Wyke, about six miles from Scarborough. It is reached by the cliffs, or the high road through Burniston and Cloughton, the latter being preferred as affording opportunities of picture making. Haiburn Wyke is a well-wooded valley, with a stream and cascade, the rocks peeping up here and there through the soil, and the sea breaking into foam on rocks at the end.

Three excursions should be made inland—one through East and West Ayton to Wykeham, and the other to Hackness, and the third to Filey, turning aside through Hunmanby, North Burton, Rudstone, with its ancient monument, to Bridlington. The return drive should be by Flamborough, with its "Matron," "King and Queen," its tiny harbour, and party-coloured fishing boats.

While at Hackness, turning down the road to the right, you will find yourself in a deep ravine called the Troutsdale, from which a second turn leads you into the vale of the Black Beck. There are two ways of returning, one over the hill, on the summit of which is the village of Broxa, or by the Forge Valley. If you take my advice you will leave the Forge Valley for another day, as innumerable journeys may be made, and you will still find spots on which to expose a plate.

Through it runs the Derwent, a pretty good trout stream, I believe, but permission has first to be obtained from the Anglers' Club. The valley is wooded throughout most beautifully, and nature is always to be found at its best there.

In Scarborough itself will be found the old church where Amie Brontë lies buried, the castle, and some curious old streets; and last, but not least, the harbour and shipping, small though the latter is. The people about are generally only too glad to stand for their "pictures."

Glamorganshire Photo-Survey.

A JOINT meeting of the Cardiff Photographic Society and the sub-committee of the Cardiff Free Library was held at the Cardiff Free Library for the purpose of inspecting the eighteen volumes the results of the Glamorganshire Photo-Survey. Great satisfaction was expressed at the manner in which Mr. Ballinger, the chief librarian, had mounted and arranged the volumes, each contributor to the survey having one and in the case of Mr. Mansel Franklin three volumes placed at his disposal.

The number of photographs mounted and bound is over 900, besides which there are about 600 not yet bound.

C. F. Gooch, Esq., J.P., having taken the chair, a paper was read by Mr. William Booth on the progress of the photo-survey of Glamorganshire.

Mr. Booth said—I have great pleasure in reading my fourth annual report on the progress of the survey. The older members of the Cardiff Photographic Society may remember that some four years ago Mr. Ballinger and I read papers asking the society to take up a photo-survey of the county, and deposit the results in the free library. I also explained how they were working in Warwickshire, and asked you to do likewise. The success or otherwise of that appeal you will see in the eighteen volumes you have before you to-night. The first time I had to report progress was on December 5th, 1890. I was then able to inform you we had about 150 prints, mostly albumenised, I was also able to state that we were going to have a photographic survey exhibition with medals. In March, 1892, I was able to tell you that the exhibition so far as the survey was concerned had been a distinct success, and in consequence our collection had increased from 150 to 787. Those 787 prints, with others, are now in those volumes, and I must say the photographic society of Cardiff ought to be very much obliged to Mr. Ballinger for the way in which he has worked the collection up, thereby bringing the Cardiff Photographic Society into the front rank of photographic societies, who are doing good, useful, and lasting work, and not only that, but by his sending out those specimens of our survey to Chicago, our name will become recognised, not only in England, but in the photographic world.

Mr. Booth then made an earnest appeal to the members to assist the survey during next summer, and read a kind letter from Mr. J. Cheese of the Exeter survey, and a letter from Mr. Colthurst, of the Manchester and Salford Survey, who kindly offered the use of their survey slides for an evening next season, and also explained how their very thorough and perfect survey is being carried out.

Mr. Booth then read a letter from Mr. Jerome Harrison, and gave the members some excellent advice from Mr. Harrison's pamphlets on photo-surveying, and maintained that the proper place for the surveys to be preserved was at the free libraries, where they could be seen by everyone, and not in the private collections of the societies. He then said—But of course the main aim and object of a survey is to secure photos of places and things that are about to be altered or destroyed, and in Cardiff and the mining districts around the destruction is going on faster than it is possible to take the photographs. Landmarks in Welsh history and places of the greatest interest are being swept away daily, and the very places where they stood forgotten. I found that out the other day, even in such a fossilised place as Llantrissant, where I went to secure some photographs of the cremation of Dr. Price, the Arch-Druid. I thought I would take a photograph of the house in which Alderman Evans, the Welsh Lord Mayor of London, was born. In order to make sure, I asked five natives, and they all pointed to one particular house as the identical one. I now find that the house in which he was born was in another part of the town, has been pulled down, and another built in its place.

Mr. Booth concluded with an appeal to the professional photographers of the county to assist with portraits of eminent persons, as at present there were very few in the collection.

In the discussion which followed, the Rev. Mr. Fryer suggested that the volumes should be indexed and a large scale map be hung in a convenient place for the use of members.

Mr. T. H. Thomas said there were many places it would be impossible to photograph, in which case he as an artist would be pleased to make sketches which could be photographed. He also mentioned several interesting antiquities that wanted photographing, amongst others four ancient pigsties in the county which he said were a survival of the lines on which our ancient Welsh ancestors built their houses.

After the usual votes of thanks the meeting gave its undivided attention to the generous repast which had been provided by one of the members of the committee.

Reviews.

Anleitung zur Photographie. By Pizzighelli. Fifth Edition. Published by Wilhelm Knapp, Halle-a-S. Price 3s.

Pizzighelli's elementary instruction book, or, as it is known in Germany "der Kleine Pizzighelli," is one of the best-known of all text-books for beginners, and that it has run through four editions of over 9,000 is a pretty good proof of its value. It is a convenient size for the pocket, and contains practical and clearly written notes on all the leading processes of photography, and some valuable information on the choice of lenses, apparatus, etc.

The Year Book of Science. Edited by Prof. T. G. Bonney. Published by Cassell and Company, Ld., London.

This book, which is only in its second year of publication, is for the busy man of science the most useful of all year-books, containing as it does concise abstracts of the most important papers published during the year. The subjects treated of are physics, chemistry, geology, and mineralogy, biology, animal and botanical. Each subject is subdivided into sections, and these are compiled by some of the very highest authorities of the day. It is an extremely valuable work, and well edited and printed.

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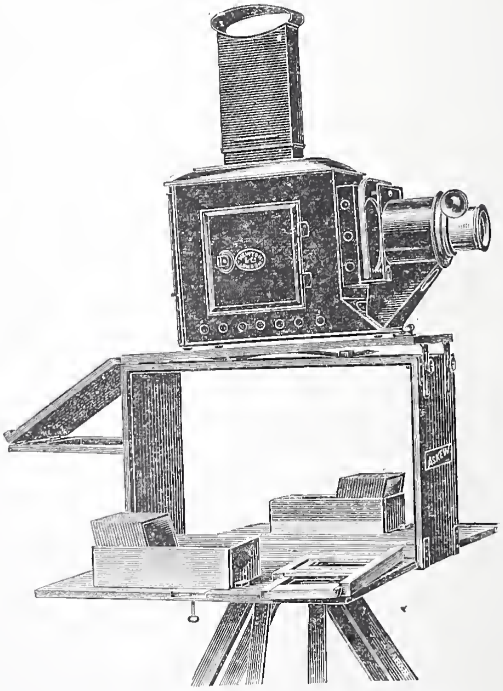
Apparatus.

THE "ASKEW" LANTERN BOX AND STAND.

MESSRS. NEWTON AND CO., of 3, Fleet Street, E.C., have favoured us with the diagram illustrating the "Askew" case referred to in our last week's instalment of the "A B C of the Lantern." As will be seen, the sides of the case which in travelling contains the lantern, let down, and form useful supports for the slides, carrier, and other odds and ends. The top is provided with a canting arrangement, and the back is arranged to form a desk for the lecturer's MSS. The price complete is 42s.



THE CITY SALE AND EXCHANGE ROOMS.

We paid a visit last week to the above rooms, and found a very large assortment of new and second-hand goods of all makers in stock. A feature of this emporium upon which great stress is properly laid, is that here the would-be purchaser may examine and compare the cameras and all photographic apparatus of the various makers, and decide for himself the one that suits him best, a great convenience to those who are undecided as to which and what to buy. This firm also receive good sfor sale, or will purchase second-hand goods outright; and a special feature is made of the hire of apparatus, by the hour, day, week, or month, and the hirer, if he take a great fancy to apparatus, may purchase it, and the hiring fee be deducted from the price. This hiring is not confined to particular makers' goods, but all and any are treated in the same way.

Another feature, and one that commends itself to those short of cash, is that goods may be purchased by the easy payment system, so that it is possible to obtain any expensive set by six monthly instalments.

Lanterns, slides, all photographic apparatus, microscopes, etc., are kept in stock, and any apparatus may be purchased, and if not satisfactory no difficulty is made of changing the same, Mr. Green's (the Manager) sole idea being to satisfy his customers.

Exhibitions.

SOCIETY.	ENTRIES CLOSE.	OPENS.	CLOSES.	ADDRESS OF SECRETARY.
Blackheath Camera Club ...	Slides, Feb. 28; Prints, Mar. 1	Mar. 3	Mar. 4	C. W. Piper, 46, Shooter's Hill Road (slides); Thos. B. Earle, The Art Club, Bennett Park, Blackheath (prints).
Fillebrook Atheneum ...	Feb. 20	Mar. 1	Mar 2	J. W. Spurgeon, 1, Drayton Villas, Leytonstone.
National Photographic Exhibition, Crystal Palace ...	—	April 10	April 29	Mr. Chas. W. Hastings; Mr. S. G. B. Wollaston.
Philadelphia (U.S.A.) Phot. Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.
National Sportsmans' Exhibition (Photo. Apparatus Section):	—	April 24	May 6	Royal Aquarium, Westminster.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B.

THE PAISLEY PHOTOGRAPHIC SOCIETY.

The seventh annual exhibition was opened in the Lecture Hall of the Museum on the 23rd ult. by the president, Mr. Andrew M'Callum. The judges—Messrs. Archibald Watson, Glasgow; Alex. Robb, Gourock; and John Fullerton, Paisley—made the following awards:—

Landscape, with or without figure (prizes given by Mr. Smiley, hon. president)—1, Matthew Morrison; 2, Alexander Thomson.

Architecture, exterior or interior (prizes by Mr. Smiley)—1, Alexander Thomson; 2, Charles Glassford.

Portraits or Groups, indoors or outdoors (prizes by Mr. Smiley)—2 (only award), Alex. Fraser.

Photographs taken during Saturday Excursions (prizes by Mr. Donald, vice-president)—1, Alexander Thomson; 2, David B. Jack.

Instantaneous Marine and Detective Work (prizes given by Mr. M'Callum, the president)—1 (only award), J. Stewart Clark.

Enlargements (prizes by Mr. Morrison, hon. vice-president)—1, J. Stewart Clark.

Copying in 3 Divisions (prizes by Mr. Wotherspoon)—(2) Copies of Work in Monochrome—2 (only award), Transparencies, James Mure. (3) Copies of Line Work, etc.—1 (only award), Transparencies, Thos. H. Taylor.

Lantern Slides, by either contact or reduction—best series of six, any subject (Society's Prize)—1, David B. Jack; 2, James Mure

Later in the evening the prize slides and others were put through the lantern in the Lecture Hall.

Societies' Notes.

The West Surrey Photographic Society now meet in the Public Library, Lavender Hill.

The Bolton Photographic Society will hold an exhibition from the 12th to the 15th of April. Six silver and six bronze medals will be offered for competition in the following classes, viz.:—Class 1, members of the society only; for the best set of six photos from negatives taken since March, 1889: First prize, silver medal; second prize, bronze medal.—Class 2, members of the society only; for the best set, of at least six photos (and not more than twelve), taken at the out-door meetings of the society during 1892: First prize, silver medal; second prize, bronze medal.—Class 3, members of the society only; for the best set of six (only) transparencies, 3¼ square, from negatives taken during 1892 (all slides must be properly mounted with mats and covers ready for use in lantern, marked on face with white spots and titled): First prize, silver medal; second prize, bronze medal. For non-members of the society.—Class 4, open to professional photographers; for the best set of six portraits; process, size, etc., optional: Silver medal. Ditto., for the best landscape or seascape; process, size, etc., optional: Bronze medal. No pictures which have previously taken a prize are eligible.—Class 5, open to all amateur photographers (members of the Bolton society excepted); for the best set of six photographs, landscape or seascape: First prize, silver medal; second prize, bronze medal.—Class 6, champion class. Open to professionals and amateurs; this class is reserved for photographs which have received medals at any photographic exhibition. A silver and also a bronze medal are offered in this class. No medals will be awarded in classes which have less than six competitors. As regards the open competitions (classes 4, 5, and 6), all pictures must be sent in carriage paid; and accompanying the competition sheet postal order for 2s. 6d. for each class entered, to cover cost of hanging and packing. Pictures must be addressed to the Bolton Photographic Society, Public Sales Rooms, Bowker's Row, Bolton, and must arrive not later than Monday or Tuesday, April 10th and 11th. Competition sheets and all other information can be obtained from Mr. J. E. Austwick, Hon. Secretary Exhibition Committee, 10, Rushton Street, Bolton. The committee reserve all rights as regards hanging and displaying pictures, and may refuse to display any picture or pictures without assigning reasons for so doing.

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On 1st inst. Mr. T. R. Dallmeyer read a paper before the Society of Arts on his process of photographing distant objects, entitled, "Tele-photography."

The Hand-Camera in Arctic Explorations.—Mr. W. E. Meehan, in giving in the *American Journal of Photography* of January, 1893, an account of his recent journey to North Greenland as a member of the Peary Relief Expedition, says he considers a hand-camera to be an indispensable part of the outfit of an explorer. He himself used an Eastman's No. 4 Junior Kodak, and the results were most gratifying. Many times he came across places worthy to be photographed, but so nearly inaccessible that with anything else but a hand-camera the picture could not have been taken.

Photographic Counterfeit Notes.—In the report of the Secret Service Department of the United States Treasury for the year ending June 30th, 1892, A. L. Drummond, chief operator, reports that his force during the last year detected and arrested the makers of two very fine photographic counterfeit notes—one the 5 dols. issue of the First National Bank of Bay City, Michigan, and the other a United States issue of a 20 dols. gold certificate. In the case of the gold certificate the reproduction was so skilfully done that it would have worked great mischief. The photographic counterfeiter was, however, quickly detected and arrested.—"*American Journal of Photography,*" *January*, 1893.

Military Application of Photography.—Major James B. Quinn, U.S.A., in an address read before the New Orleans Camera Club, Dec. 15, 1892, and published in the American *Amateur Photographer* of Jan. 1893, referring to the war between North and South America, said that General Sherman, previous to his departure from Atlanta, caused photographic copies of all the maps relating to the proposed route to be made, and distributed throughout his command. The production of maps was not the only important use that could be made of photography in the field; for during the progress of an army through strange lands it was of the greatest importance that the commanding officer should possess a perfect knowledge of the country surrounding him. The camera is certainly without a rival when such information is required.

Societies' Meetings.

Accrington.—On the 20th ult., Dr. Clayton in the chair, a large number of members assembled to hear the Rev. J. R. Rendell on "Photographic Lenses." The lecture, which was very interesting and much appreciated, was illustrated by the optical lantern, and at the close several questions relating to the subject were asked and answered to the satisfaction of the audience.

Aston.—On the 23rd ult., "Mutual Criticism." The fine collection of prints and interest displayed by members spoke well for the success of similar future meetings. The works brought up included albumens, Solios, printing-out papers, bromides, alphas, and platinotypes, the latter class being represented in some fine Jersey subjects by Mr. A. C. Townsend. Mr. Tylar showed some fine animal studies by Gambier Bolton, and some marine works by the Rev. F. Lambert. Local professional honours were due to some artistic posing from the study of Mr. W. Wollaston. Messrs. G. Priddin and Pilditch (Secs.) placed some of their views on the screen, the former showing some of abnormal development. Mr. S. Priddin's snap-shot album was much admired, and the interest evinced in the impartial criticisms made this meeting undoubtedly the most successful one held by this new association of amateur and professional photographers.

Birmingham.—On 20th ult. Mr. J. J. Button gave a very interesting lecture, illustrated by lantern slides, entitled "Travels in Egypt." Mr. Button showed and described to his audience more especially the old parts of the towns of Cairo and Alexandria. He also gave many interesting details of the life and customs of the people. The lecture was very much appreciated.

Birmingham (Phot. Union).—A meeting was held on 22nd ult., Mr. S. Delicate (Vice-President) in the chair. Messrs. F. W. Naish, J. Green, T. Smallwood were elected members of the Union, and also three names were given in as candidates for election. Mr. W. P. H. Foster gave a most interesting lecture on "Home-made Apparatus," in which he pointed out how amateurs can economise by making their own accessories. He produced a quarter-plate camera with tripod, the former only weighing two pounds, made by himself, which was much admired for its rigidity and lightness.

Bolton.—The usual monthly meeting was held on the 7th ult., Mr. Wm. Banks in the chair. Mr. J. S. Roscow gave a demonstration of toning, fixing, and mounting gelatino-chloride prints, and Mr. Smith, of the Eastman Company, a short address on the advantages of gelatine papers. A lantern exhibition concluded the evening. It was also resolved that the society hold a four days' exhibition during the second week in April next, and that six silver and six bronze medals be offered for competition.

Bristol.—On 24th ult., Mr. E. Brightman in the chair. The collection of old waxed-paper negatives recently secured by the Association was thoroughly examined by the members for reprinting and making lantern slides. Mr. Gwyer showed a new lantern, using common paraffin oil, which gave nearly three times the light of an ordinary good oil lantern, and which was severely tested. This result is obtained by concentrating three wicks, and a new system of draught which is being patented. The lamp worked well and without smell.

Brixton.—Ordinary meeting 21st ult., Dr. J. Reynolds, President, in the chair. Mr. J. A. Butler, one of the members, read a paper on the "Stereoscope and Stereoscopic Photography." After reviewing the history of the instrument, he gave a lucid explanation of the theory of the lenticular instrument, followed by instructions for the preparation of photographs for it. He insisted that it was necessary, if the pictures were to be seen to the greatest advantage, that they should be so mounted, and the lenses of the stereoscope so adjusted that they might be observed with the same convergence of the optic axes as the various objects included in the view were from the point at which the two photographs were taken. He also said that the stereoscopic pictures appeared far more natural, and the perspective was truer, if the negatives were taken with lenses of such a focus, that when the pictures were seen sharply and clearly in the stereoscope, they were at about the same distance from the eyes as the lenses were from the sensitive plate when the photographs were taken. Some additional interest was felt in the paper owing to the fact that Mr. Butler expressed some difference of opinion with Mr. W. I. Chadwick, author of the "Stereoscopic Manual," as to the rule that should be adopted in mounting the two pictures. Mr. Chadwick insists that the distance of separation should be measured between two similar points in the foreground of the two pictures, but Mr. Butler contended that the very reverse of this should be done, and the separation measured between two similar points in the distance.

City of London College.—On 22nd ult., "Micro-photography." A paper and demonstration on this subject were given by Mr. E. A. Andrews, F.C.S., M.P.S., who handed round illustrative lantern slides. Micro-photographs taken without a camera, by the aid of an incandescent lamp (which was produced) were shown by Mr. W. C. Cooke. A stained bromide print was discussed, and a member passed round some Amidol-developed bromide opals. A discussion on Amidol followed.

Eastbourne.—Ordinary meeting 22nd ult., President, Mr. H. Habford, in the chair. Good attendance. Mr Morgan, of Fuerst Bros., gave a practical demonstration on "Amidol," which was listened to with much pleasure. He explained the various ways in which it was mixed and used, also developing negatives, paper, and lantern slide, showing that the developer was all that the makers claimed for it.

Guildford.—On 21st ult. a meeting was held, when slides illustrating "British Lighthouses and Scenes in the Scilly Isles," lent by one of the members, Mr. G. C. Williamson, were exhibited, Mr. A. E. Moon in charge of the lantern. The slides were much appreciated, and the able remarks of the lecturer added much interest.

Hackney.—On 21st ult., in the temporary absence of Dr. Roland Smith, Mr. J. O. Grant occupied the chair. Messrs. Sodeau and Nunn showed reductions by flashlight and printing-out lantern plate. Mr. R. Beckett showed a lens made from two 9d. meniscus spectacle lenses, and a portrait taken with it at full aperture, *f*/8. The Hon. Secretary asked why it was recommended to keep gold solution in the dark? Mr. Sodeau said light was likely to reduce the gold to a metallic form. Mr. Barker asked, can ferrous sulphate be recovered when oxydised by light? Mr. Sodeau said, yes, if organic acidfying matter be present, also recovered by use of iron filings and nails. Mr. Avent asked how to harden gelatine films? Mr. Sodeau said chrome alum hardens more than ordinary alum; methylated spirit or aluminium chloride would also do. In answer to Mr. Poulson, it was advised to use boiled water for making solutions. Mr. Gosling asked about keeping of sulphite soda? Mr. Sodeau said it went to powder. Mr. Beckett said sulphate was inert in developers. Mr. T. H. Smith asked which was the best kind of glass to use, and was advised black for silver compounds. The lantern was then brought into use, and a number of slides were shown, after which lantern lenses were tested.

Leeds.—Meeting on 20th ult., lantern night, Mr. Warburton, Vice-President, in the chair. The P. S. G. B. Affiliated Societies Convention set of slides were exhibited, representing scenes in and around Plymouth, and showing it to be an interesting place for the photographer. So that those who attend the Convention to be held there this year will be amply rewarded in finding abundance of good subjects for the camera. The Camera Club also kindly lent their A and B set of slides to the President, Mr. Walker, who is a member of that club. The sets were very much admired, and could scarcely be otherwise, as they have been produced by several of the best men of the day. Mr. Warburton also showed some slides, scenes on the sands, figures, etc., and showed his usual sklli in producing good work.

Liverpool (A. P. A.).—The ordinary meeting was held on 23rd ult., Mr. A. J. Cleaver, President, in the chair. Five new members were elected. Mr. G. A. Carruthers exhibited and explained his ingenious magnesium flash-lamp, and photographed a group of members as an experiment. He afterwards passed several very excellent slides through the lantern, the negatives being taken with the lamp. The President called on Mr. F. Clibborn to give his lecture entitled "A Little Tour through Ireland," illustrated by a set of high-class slides made by Mr. G. E. Thompson.

Louth.—The last popular lime-light exhibition of the season took place on 24th ult. The exhibition comprised no less than 150 pictures by well-known workers, being *Photography* prize slides. Mr. S. F. Clarke, L.D.S., gave explanatory and descriptive remarks, and Mrs. Clarke, assisted by Mr. Clarence James, manipulated the lantern. Although the audience showed itself quick to appreciate merit, none of the slides were more heartily applauded than those by Mrs. Clarke, who had gained two silver medals. Vocal and instrumental music enlivened the proceedings.

North London.—On 21st ult., Mr. J. Brewer in the chair. Lantern night; slides were contributed by Messrs. Healy, Williams, Clarke, and others. The set of slides entitled "Places to be Visited by the 1893 Convention" were shown. They were disappointing, and are far from doing justice either to the D. and C. C. C. or the Devon and Cornwall district.

Nottingham (Mechanics').—The usual meeting was held under the presidency of Mr. Councillor J. A. H. Green. The minutes of the previous meeting were confirmed and signed. Two new members were elected. Mr. Green then presented the prizes won at the annual competition of the members to the winners as follows:—Landscape: Mr. Fewkes, Thornton-Pickard shutter. Instantaneous Mr. Hartley, Lancaster's special Omnigraph hand-camera. Artistic combination: Miss Clarke-Griffith, hand-camera. After which there was an exhibition of the *Photography* 1892 prize slides, the description being read by the Hon. Secretary, and Mr. A. W. Flowerdew working the lantern.

Phot. Soc. of Ireland.—A meeting was held on 23rd ult., Prof. J. A. Scott, President, in the chair. A very highly interesting series of lantern slides, illustrating a tour in Brittany, was contributed by Major J. D. Lysaght, President of the Munster Camera Club, and were much admired by the members and their friends present.

Putney.—Ordinary meeting held on 20th ult., Dr. W. J. Sheppard in the chair. Mr. J. B. Scott was elected a member of the society. Mr. J. B. B. Wellington, of the Eastman Company, gave a demonstration on "Development of Rollable Films." In a short preface he gave a history of the improvements of these films, culminating in those manufactured by the Company at the present time. The chief advantages claimed were extreme lightness, portability, and the convenience of being able to carry one hundred exposures, very great advantages when travelling. Having brought a roll of exposed film, Mr. Wellington showed how very plainly their new roll-holder marked the divisions between the exposures, thus getting rid of a difficulty which had been experienced with the earlier patterns. Proceeding with the demonstration, he first soaked the films in water, which certainly caused them to lie quite flat during development; at least a dozen films were treated simultaneously, being placed face downwards and care taken to keep them constantly moving, by transferring those from the bottom to the top in the same way as prints in a toning bath. This treatment is essential to ensure even development. The developer used was the pyro-soda recommended by the Company. Mr. Wellington stated that in cases of under-exposure, better results would be obtained by long development than by increasing the quantity of soda. After development the negatives were rinsed and placed in an acid and alum clearing bath, washed thoroughly and fixed; the final washing completed, the films were placed face downwards on an opal slab or glass plate, and squeegeed to get rid of superfluous moisture; they were then pinned down at the corners and allowed to dry spontaneously. The best way to store them was under pressure, between the leaves of an album or book. During the discussion Mr. Wellington stated that various marks which undoubtedly occurred in their films some time ago would not now appear, as great improvements had been introduced in their manufacture.

Richmond.—On the 21st ult., Mr. R. L. Kidd in the chair, Mr. S. G. B. Wollaston gave a demonstration on "Platinotype," and in introducing the subject claimed for the new cold-bath paper the following advantages over the old hot-bath process, viz., perfect control over development; paper can be sufficiently printed out to show all detail even in the highest lights; warm or cold tones obtained at will by strengthening or reducing developer; retardation of development of any portion of print by the application of glycerine; paper keeps three or four times as long as hot-bath paper, and will certainly keep good for nine months if properly stored in calcium tubes; prints after printing will keep a week before development, but it is not recommended to keep them more than about three days. Mr. Wollaston then proceeded to develop some prints with various strengths of developer, and obtained some beautiful results with various gradations in warmth of tone, but it was thought by most of the members present that a still warmer tone was desirable. Some of the prints were developed by flotation, and others with a brush, the latter showing the capabilities of the paper in the hands of any one skilled in painting. It seems almost impossible to spoil a print with this new paper, as development may be made bit by bit and yet no markings can be detected. Mr. Wollaston, however, said there was one point to be guarded against in the local application of glycerine, viz., not to allow the glycerine to remain on too long, but to work it off rather quickly with a brush, otherwise two tones might be obtained on the one print.

Sheffield (Optical Lantern).—This Society held its annual meeting on 16th ult., when Mr. Clowes, Vice-President, occupied the chair. The statement of accounts for the past year, showing a balance in hand, was read and adopted. A vote of thanks having been accorded to the officers for their services during the past year, the following were elected to serve for the ensuing year:—President, Mr. E. G. Draper; Vice-Presidents, Dr. Manton and Mr. H. Staniforth; Treasurer, Mr. E. Copley; Hon. Secretary, Mr. J. S. Stephens (6, Sheaf Gardens Terrace, Sheffield); Assist.-Secretary, Mr. J. T. Frith. Committee: Messrs. J. Clowes, T. G. Allen, J. Maclaurin, J. W. Wilshaw, T. Baker, F. Mottershaw, J. W. Whittington, J. Stacey, and S. Hughes. Mr. Mottershaw, one of the members, then took a flashlight portrait of the members present in a group. This was taken on an Ilford special rapid plate. The lens used was the Sheffield Photographic Company's No. 3 "Promenade" portrait lens of $12\frac{1}{2}$ in. equivalent focus, with *f*/4 stop. The group being large, two flash lamps were used (the "Eclipse" blow-through by the same makers), each charged with about $\frac{1}{2}$ dram. of magnesium powder, and placed equi-distant between the group and the camera, one on each side, Mr. Mottershaw explaining that when taking small groups he generally placed the lamp on the camera. The plate while being developed showed slight signs of over-exposure, but being treated for this came out well.

South London.—On 20th ult., the President, Mr. F. W. Edwards, in the chair. Additions to the Club library were announced, after which Mr. Wm. Rice (Vice-President) delivered his lecture on "Problems in Photographic Arithmetic," published in our issue of last week. A considerable discussion followed, in the course of which Mr. P. Everitt criticised the lecturer's method of calculating "angle of view" and "picture angle," and it was decided to deal with the question again on another evening. By the courtesy of the manufacturers, samples of Cadett's Lightning plates and Schwarz's Diamidophenol, in powder and cartridges, were distributed. Miller's Unique hand-camera was shown by Mr. Ransom, and was critically examined.

Tunbridge Wells.—The ordinary meeting was held on the 23rd ult., Mr. E. R. Ashton in the chair. Mr. E. L. Morgan, who represented Messrs. Fuerst Bros., kindly gave a demonstration with Amidol before a good gathering of workers, plates, lantern slides, and bromide paper being developed in a highly satisfactory manner. One half-plate, an Ilford ordinary, brought by Mr. J. W. Morgan, was a landscape, near view, stop *f*/16, at 2.30 in the afternoon, had an exposure of 1 sec., full density being obtained in an incredibly short time, much to the astonishment of all, who thought it a critical test.

West Surrey.—The usual meeting was held on 22nd ult., Mr. James in the chair. The usual business was quickly disposed of, and six new members were elected to the society. Mr. E. Swingler then read a paper on the "Elements of Photography," going as minutely as time would allow into the mysteries of the various processes, from the selection of a camera to the framing of the finished print. Mr. Swingler gave his experiences in such a manner as to make himself perfectly understood by the greatest novice, and no doubt many will profit by his remarks. Mr. Swingler afterwards passed round some negatives, prints, and transparencies, at the same time calling attention to their good points and their defects.

Wigan.—On 23rd ult. Mr. E. M. Tunstall, of the Liverpool Amateur Photographic Association, delivered his lecture on "Picturesque Holland" before a crowded audience of members and friends in the large room of the Y.M.C.A. The President of the society, Mr. J. A. E. Lowe, occupied the chair. The lecture was illustrated by about 120 lantern slides, prepared by Mr Tunstall from negatives taken by himself in the autumn of last year, and was received with great enthusiam. The lecturer was eminently successful in his description of the very many points of interest in this favourite photographic resort, which abounds in fine river scenery, architecture, statuary, street scenes, etc., and which were so realistically depicted in his lantern slides. After leaving Holland, the lecturer undertakes to give you glimpses of Antwerp and Brussels; and from a spectator's point of view, these are, if anything, more beautiful than their predecessors. The interiors of the Cathedrals at both places, as well as those of the Jesuits' Church and the Church of St. Paul at Antwerp, and the Palace of Justice at Brussels, are exceedingly fine, and the reproductions of these on the screen are such as one would only venture to expect from so experienced a worker as Mr. Tunstall. The society has been fortunate enough to secure the services of Mr. Paul Lange for the 23rd March, who will read a paper and give a demonstration on "Hand-camera Work," which will be illustrated by lantern slides from snap-shots by Mr. Lange.

City of London Cycling Club.—A grand smoking concert and photographic social was held at the Champion Hotel, Aldersgate Street, on Friday last. An excellent evening's programme of music and recitations was gone through, and during the evening a lantern lecture on the Peak and Dale district was delivered. Some miscellaneous slides were also exhibited. Dr. E. J. O'Reilly occupied the chair, and Messrs. Herbert Smith and E. Danell presided at the lantern.

A New Photo-Intaglio Process.—Mr. Louis E. Levy, in a paper which was read before the Franklin Institute, described a new method, which he called "Photo-Mezzotint," the essential features of which lie in the fact that the picture, instead of being obtained from a graduated depth of the engraving, is produced from a sunken surface of uniform depth; the gradations of light, half-tone, and shade being effected by minute lines and stipples of varying thicknesses, but of uniform distance apart from centre to centre. In this respect the photo-mezzotint may be regarded as a development of the so-called half-tone relief process, the true mezzotint or photogravure effect being attained by reducing the thickness of lines and stipples, and multiplying their ratio to the surface to such a degree as to render them invisible to the naked eye. In that way all the finest gradations from pure white to deep black are obtainable.—*American Journal of Photography, Jan.* 1893.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume.*
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer Questions by post.

QUERIES.

5948. **Paraffin Carbons.**—Should be much obliged if "Montrose," 5914 of the AMATEUR PHOTOGRAPHER, *re* Lantern Oils, would kindly let me know where Naylor's paraffin carbons can be obtained.—NEMO.

5949. **Easter Holidays.**—Will any gentleman give particulars of a tour in Holland—Rotterdam to Amsterdam, going and returning by different routes, five clear days there, museums and picture galleries excluded?—L. S. Z.

5950. **Stains.**—I find some of my negatives stained which have been developed with pyro developer, Ilford formulæ. What is the cause and the best remedy?—SOCE.

5951. **Lens.**—Can a Wray's R.R. lens be used for any purpose when the back part of the lens is removed; if so, will it make any difference to the exposure required?—STRAND.

5952. **Ferrous Oxalate Developer.**—In developing my plates with ferrous oxalate developer they take a considerable time to come up; can I quicken this?—MAUD.

5953. **Toning Chloride Papers.**—What toning bath can any of your readers recommend for the P.O.P. and Solio papers?—D. BOS.

5954. **Metal Dishes.**—Is it, in the opinion of any of your readers, well to use metal dishes for developing, etc.?—VILLA.

5955. **Magnesium Light.**—How much magnesium wire do I require to take a portrait with a R.R. lens, using an ordinary plate?—BROMO DE ARMA.

5956. **Colouring Slides.**—Would any of your readers oblige with some information how lantern slides are coloured in oil or water colour, and what medium should be used to make colour take the film? ARTIST.

5957. **Copying Prints, etc.**—Will any of your readers kindly tell me if lithograph pictures and engravings could be copied with a rectilinear lens, and what exposure would they recommend.—REGINA.

5958. **Blackening Aluminium.**—How can aluminium be chemically blackened?—J. M. K.

ANSWERS.

5927. **Pyro Solution.**—Nothing keeps better than the following, and none more simple to manipulate:—Pyro, 1 oz.; ammonia bromide, 1 oz.; acid citric, 1 drachm; sulphite soda, 4 oz.; water, to 10 oz. The alkali can be what the user fancies, but liq. ammon. has given me the best results with above. The formulæ is—Pyro sol., 1 drachm; ammon. sol. 10 per cent., 1 drachm; water, 2 oz.; for a normal exposure.—DOCTOR SMITH.

5927. **Pyro Solution.**—I have used a stock solution of pyro made up before Good Friday, '92, until now, and it is as vigorous as ever. This is it:—

I.

Pyro	1 oz.
Sodium sulphite	3 ,,
Citric acid	¼ ,,
Water	10 ,,

II.

Liq. ammonia ·880	1 oz.
Water to	10 ,,

III.

Pot. bromide	1 oz.
Water	10 ,,

It is, in fact, Thomas's, does not stain the fingers, and is most convenient to use.—STANLEY BROOK.

5927. **Pyro Solution.**—The following keeps well if tightly corked—

Sodic sulphite	3 oz.
Citric acid	¼ ,,
Pyro	1 ,,
Water	10 ,,

—THE SMITH.

5927. **Pyro Solution.**—I use the following, which keeps over twelve months, viz.:—

Pyro	1 oz.
Metabisulphite potass.	½ ,,
Ammonium bromide	½ ,,
Water	10 ,,

—CODBECK.

5928. **Reducer.**—Your very best plan to ensure the safety of your negative will be to reduce with the pot. ferridcyanide formula, and not let it go too far. The process can easily be gone over again in case of insufficient reduction. Use as follows:—(1) Red prussiate of potash saturated solution; (2) Hypo solution, 2 oz. to a pint. Use, to start with, 10 drops of No. 1 and 2 oz. No. 2; this will carry reduction to a certain point; if not far enough, add No. 1 drop by drop till desired reduction is obtained, then wash well and dry as usual.—DOCTOR SMITH.

5928. **Reducer.**—The standard reducer is Howard Farmer's:—

Ferridcyanide potass. (sat. sol.)	1 part
Hypo solution (1:5	1 part

Soak the negative before placing in solution, and when sufficiently reduced wash for half an hour at least. As the negatives are valuable it would be as well to make a transparency by contact before reducing so that if the operation were not perfectly satisfactory the negatives could be duplicated.—THE SMITH.

5928. **Reducer.**—Try first by printing in direct sunlight; if not satisfactory then, reduce with—

Ferric chloride	1 dr.
Water	4 oz.

Flow this over the plate, then wash and immerse in fixing bath. The solution acts very vigorously, and should be diluted if only a small reduction is required (*vide* Abney's "Instructions in Photography," sold by Hazell, Watson, and Viney, Ld.)—CODBECK.

5929. **Uranium Intensifier.**—

A.

Uranium nitrate	100 gr.
Water	24 oz.

B.

Potass. ferridcyanide	100 gr.
Water	24 oz.

Mix only as required.—THE SMITH.

5929. **Uranium Intensifier.**—"Amid' C." should try the following known as Dr. Eder's—

Uranium nitrate	15 gr.
Potass. ferricyanide	15 gr.
Water	4 oz.

The plate must be thoroughly washed to free it from any traces of hyposulphite soda which otherwise would cause a reduction of the uranic salt and a consequent slight chocolate-coloured veil over the shadows (*vide* Abney's "Instructions in Photography," sold by Hazell, Watson, and Viney).—CODBECK.

5930. **Restrainer.**—You can safely use the same quantity of bromide ammonium as bromide potassium ordered in the new Ilford formula. The quantity used is so small as to make no appreciable difference.—DOCTOR SMITH.

5930. **Restrainer.**—Potassium bromide may be replaced by ammonium bromide without any perceptible difference.—THE SMITH.

5930. **Restrainer.**—Yes, bromide of ammonium is a stronger restrainer than bromide of potassium.—CODBECK.

5936. **Lens.**—You will be sure to obtain the lens you require at Fallowfield's. I had one of a similar type sometime back which gave me infinite satisfaction. You will find varied stock there, and if they had not the particular one to answer your requirements, dare say they would get it.—DOCTOR SMITH.

5938. **Retouching Desk.**—Place the negative in the printing-frame and incline it at an angle, having some white paper on table underneath it.—CODBECK.

5938. **Retouching Desk.**—Take a piece of well-plained deal, 16 in. wide by 21 in. long, by ¼ in. thick (suitable for 12 by 10 negatives, and smaller). If only required for one size of negative, cut out from this piece, which is to form the face of the desk, a rectangle just 1-8th inch smaller than the size of the negatives required to be retouched. Having done this, mark with a pencil round this aperture the exact size of the negative, and cut this all round with a chisel, to the depth of 1-8th inch. This will leave a ledge of 1·8th inch wide and 1·8th inch thick, for the negative to rest upon. If different sizes of negatives are required to be retouched, frames for them to rest in must be made in the same manner. Next, fasten one end of this board by means of hinges, to another of the same dimensions, to form the base. In order to give stability to the desk, it would be advisable for this second piece to be ½ inch thick. On to this, screw a strip of deal, of the same length as the base, and deeply notched; also to the side of the face, fasten by one screw, another strip to fit into the notches of the base, and to form a support to the face. Now hinge to the other end of the face, another, and thinner piece of wood, of the same breadth and length as the other two pieces (viz., the face and the base), which is to shut the light out from the top. This is to be supported in the same way as the face, by a strip of wood. The desk will now have the appearance of the letter Z. All that now remains is to shut out the side light, which can be done by hanging some opaque substance from each side of the top piece, and to paint the whole of the inside of the desk black. This desk will be found, though rough, to be a very serviceable article.—P. HARRISON.

5339. **Spoilt Celluloid Films.**—May be dissolved in amyl acetate and used as negative varnish.—THE SMITH.

5939. **Spoilt Celluloid Films.**—(1) They make good, unbreakable, focussing screens. (2) If put behind a transparency they enormously add to the effect, as they diffuse the light, and objects behind do not then intrude themselves. (3) The rough side can be written on with a pencil, and when done with the writing can be washed out. (4) Finally they will make a varnish, dissolved in amyl acetate, according to the Editorial reply to "Blanche" in the last number.—R. A. R. BENNETT.

5940. **Mouldy Prints.**—Probably the spots are due either to some injurious substance contained in the mounts or else the imperfect washing of prints. What adhesive do you use? If starch or paste, see that it is perfectly fresh, as sometimes mountant mixed two or three days turns sours and affects the paper. Beware of storing photographs in damp cupboards and places.—ZEBRA.

5940. **Mouldy Prints.**—May be produced by hanging on a damp wall, or omitting oil of cloves from the mountant.—THE SMITH.

5941. **A Borax Bath.**—I use the following:—

Borax	120 gr.
Water	10 oz

Add gold each time before use. Will keep some months. Add more borax when it begins to refuse to work. Filter it when a lot of sediment collects at the bottom of the bottle.—CODBECK.

5941. **A Borax Bath.**—

Borax	100 gr.
Chloride of gold	1 ,,
Water	20 oz.

This bath is only to be made just before it is wanted. Allow 1 gr. of gold for a sheet of ordinary albumenised paper; dissolve the above amount of powdered borax in hot water, make it up to 10 oz., and add the gold, dissolved in ten more ounces of water.—R. A. R. BENNETT.

5941. **A Borax Bath.**—A uniform and reliable borax toning bath is the following—Borax 90 gr., dissolve in warm water, 8 oz., then add gold chloride, 1 gr. In using this bath, prints must be quite freed from silver, and a fine permanent tone will result.—DOCTOR SMITH.

5941. **A Borax Bath.**—A borax toning bath: In a jug, place 120 gr. of powdered borax, pour in 20 oz. of boiling water, and stir until the borax is dissolved; when cold add 2 gr. chloride of gold in solution, and it is ready for use.—INSTANTO.

5941. **A Borax Bath.**—A good formula is the following: Dissolve 80 gr. of powdered borax in 6 oz. of hot water, when cool make up to 12 oz., add 1 gr. chloride gold, use at once. This bath must be made fresh and fresh. Another: Borax, 1 oz., water, 80 oz. (warm). This is a stock solution; when required for use, take sufficient quantity, adding 1 gr. of gold for every sheet of paper toned. The bath will not keep.—ZEBRA.

5942. **Retouching.**—It is impossible to give any instructions about retouching in writing. In order to be initiated in that art, it is necessary to be instructed verbally, and to be actually shown how to proceed. An important item, and one which many amateurs neglect, is to have a good point to the pencil. It should be long and fine, gradually tapering to a point. The best leads to use are Hardmuth's, and the most useful numbers 3, 4, and 5. Never put too much medium on the negative; the knowledge of the right amount is only gained by experience.—P. HARRISON.

5943. **Test Papers.**—They are used for testing whether a solution is acid or alkaline. If the test paper, which is blue in the first place, turns red on being immersed in the solution, it is acid, but if the test paper retains its blue colour, the solution is alkaline. They are sold in small books, and can be obtained from any photographic dealer or chemist. I should say it was *not* possible for an amateur to make them. They are prepared by staining unsized paper with a blue pigment called litmus, which is made from achil, a species of lichen.—P. HARRISON.

5943. **Test Papers** are used to find out whether the solution is acid, alkaline, or neutral, by dipping a piece in the solution. They are in small narrow strips, and may be got from any photographic dealer, such as Jonothan Fallowfield, for a few pence, or from chemists dealing in photographic goods.—CODBECK.

5943. **Test Papers.**—Are simply thin blotting paper soaked in solution of litmus and dried. The blue dipped into an acid solution turns red, the red dipped into an alkaline solution turns blue. You can get them from any chemist in the United Kingdom, or can make them by boiling litmus in water till it is very strongly coloured blue, dip in thin pieces of blotting paper and hang up to dry. Now add just enough (no more) sulphuric acid to the blue solution to turn it bright red, then dip in more pieces of blotting paper and dry.—R. A. R. BENNETT.

5944. **Stops.**—Portraits are best taken with full aperture of the lens used or the next size smaller stop. Groups about *f*/6 or *f*/22.—CODBECK.

5944. **Stops.**—Providing your lens gives good definition at open aperture, I should not stop it down at all. You can obtain a delicate soft portrait without getting the background too sharp by this method, which certainly is an advantage, unless you prefer otherwise, then I would recommend you to try *f*/16 or 22, ex. 2 sec., dull light.—ZEBRA.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be* **left over** *each week. This we much regret.*—ED. AM. PHOT.

F. MORESBY WHITE.—(1) We have not yet had time, are just now working short-handed and under great pressure of work. (2) The formula you want is :—

I.

Pyro..	1 oz.
Sodium sulphite	4 ,,
Sulphurous acid	1 dr.
Distilled water	to 9 oz.

II.

Potassium carbonate	1 oz.
Potassium ferrocyanide	1 ,,
Sodium carbonate	1 ,,
Distilled water	10 ,,

III.

10 per cent. solution bromide potash.

For use for half-plate mix:—No. 1 solution, 60 drops: No. 2 solution, 60 to 120 drops; No. 3 solution, 10 drops. Add No. 2 gradually.

J. C. H. C.—Lindsay Hemery, Hanover Studios, Peckham, S.E., will do all you want.

F. W. KENT.—Negative here will be sent this week.

B. B. B.—Your print has, with others, been loaned out to several societies, and we cannot now find it. Send up an unmounted one, and we will criticise and return. Black waterproof paper may be had from almost any dealer, but do you mean for prints or plates? For the latter red is used, and called non-halation paper. Try Fallowfield, Adams, Wheeler, of Manchester, or any dealer.

SINGLE DEVELOP.—Your query is inadmissible; it is unfair to ask for the formula of any trade secret.

T. W. BARTON.—(1) A solution of ox gall is generally used, made by dissolving 1 drachm of ox gall, Fel. bovin. purif., from chemist, in 5 oz. alcohol, distilled water 15 oz., and filter; apply all over print with brush and dry. (2) Soak the negative in water till soft, then immerse in—

Potassium bromide	5 gr.
Bichromate of potash	10 ,,
Distilled water	1 oz.

Allow to soak for a few minutes, pour off the solution, and add a few drops of nitric acid, reapply. When the plate is quite bleached, wash well and redevelop with—

Pyro	2 gr.
Ammonia..	2 ,,
Bromide of potash	¼ ,,

Continue development till the details are all out, and before the silver is reduced in the water right through, then refix. (3) We will send print on.

M. EGERTON.—There is nothing to choose between the lenses; if there is any choice; it rests with No. 7. You know, of course, portrait lenses are fearfully heavy, and possess poor depth of focus, and no great covering power.

C. FERRANTI.—Please send address.

MISS BROUGHTON.—Negative wants intensifying, and spots probably caused by not washing properly and the damp.

L. WHITE.—We do not know the lenses named, but at that price you cannot expect much. Try the City Sale and Exchange Rooms.

W. BAILE.—Write to Park, Station Buildings, Acton Street, Kingsland, N., for description of 5 by 4 Bruno camera, which would just suit you. We should choose 5 in., 6½ in., and 8 in. lenses; this would give you 5 in., 6½ in., 8 in., 10 in., and 13 in. foci. Double-backs and magazine preferable.

J. B. BURTON.—Use a quarter-plate or 5 by 4, and make by contact and reduce if desired. "Hodge's Lantern Slide Manual" is the best book on the subject, to be had from our publishers, price 2s.

A. J. CHAMPNESS.—Certainly, you can use your 5 in. on a whole-plate as a wide-angle lens.

J. G. GISBORN.—Write to R. Field and Co., 142, Suffolk Street, Birmingham, and they will send you a book of instructions to use the instrument. It is certainly a great help.

PSYCHE.—(1) Prints received safely, with many thanks. (2) We will try and send "Holidays with the Camera" prints this week. (3) We have no vacant date till after May 9th, when they are at Bolton. Would 11th or 12th suit you?

A SUBSCRIBER.—(1) The only case in which the term "over-toned" can be applied to bromide prints is when they have been toned with uranium or a sulphocyanide gold bath. Where did it occur? (2) Certainly, use isochromatic plates.

MONTE CARLO.—The price is a little low. The Thornton-Pickard Ruby camera is the nearest.

R. L.—The field or bellows camera, most decidedly. The City Sale and Exchange Rooms, 52, Lime Street, London, E.C., supply apparatus on monthly or weekly payments.

G. L. SNOWBALL.—We hardly think your letter admissible; surely the better plan is to complain to the company.

J. C.—Most decidedly you were right. It is immaterial that the image should be the same size in all tests, and therefore you were right in sticking to the one standpoint.

A. W. COOK.—Notwithstanding your statement, "that the fault is not due to impurities," we should say that it was, and probably hypo was the cause.

T. KIDD (Spain).—We are very sorry for your troubles, and they are inexplicable. Although we make it a rule never to buy for our readers, we will help you in this way if you like, as you are so unfortunate.

LOST IN THE COUNTRY.—7 by 5 on a lens means that the lens give a sufficiently large field of view to cover a plate 7 by 5. The degree of definition on that plate with full aperture depends greatly upon the make of the lens, etc.

TRIX.—(1) What is your screen for; backgrounds or mounting prints on, or what? (2) We believe that it is not the maker's named; we have written him, however, and will write you. (3) Stale paper would be one cause, and for chloride paper the bath must be much stronger than usual.

CALDER.—(1) Good, though could be improved by a few clouds. (2) Speaking from memory only, we should say that Vanessa Atalanta was never so black as you have painted her, poor thing! To get successful results of such coloured objects you must use isochromatic plates.

PHOTOMETER.—There is no such paper on the market; ordinary bromide paper, soaked in nitrite of potash or metabisulphite of potash 10 per cent. solution, will answer your purpose.

J. M. KEOGH.—(1) We must confess our ignorance on this point. We insert as a query. (2) There is nothing to choose between the lenses you name; both are excellent instruments. (3) Edwards' instantaneous isochromatic films. (4) Warwick would be a capital centre; you are in the heart of some of the best scenery in England. Plenty of old bits. We had some very good articles on "To Arcadia with a Camera" in our last vol., which are worth reading. We should prefer Kent and Sussex ourselves, but merely because we know them better.

H. E. ILLINGWORTH.—Edwards' landscape or medium isochromatic films are about the same rapidity; they are worked exactly the same as plates. You can obtain carriers in the market, which answer perfectly, and we have used both England's and Fitch's with excellent results. The ordinary films will not curl in the developer, and do not require backing to prevent halation.

G. RILEY.—(1) Yes, if the aperture is ¾ in. and $f/8$, the focus should be 6 in. (2) When taking a near object, such as a large head, the focus is lengthened and the ratio value of stop decreased, and your calculation for 9 in. $= f/12$ is right. (3) Measure the focal length from screen to diaphragm slot. (4) If the back combination is removed, measure the distance between the inner surface of lens and screen. (5) The only way to cure the fault complained of is to try separating the lenses of the back combination a little more. It is also possible to improve this by inserting between the lenses a concave spectacle lens of about 50 in. focus. This gives you a smaller disc, but improves matters slightly. Limelight would not improve matters much, if at all. (6) We do not know at present the exact formula used by Burton, but we should make the ammonium picrate solution, immerse the plates for two minutes, keeping the dish rocking, and then drain and dry the plates in the dark.

A. MACHEL.—We can only say that you had better accept the maker's statement, though we should say they are underrating the speed. To mount P.O.P. without losing glaze, when the prints are squeegeed to glass, coat the back with starch, and squeegee down the water-proof backing paper, allow to dry, strip, and mount in the usual way.

J. ROSENTHAL.—H. Zilles and Co., 24, Wilson Street, Finsbury, E.C., keep it, we think.

N. MIDDLETON.—A print or lantern-slide would be eligible for any competition, and you might try for the Cresco Fylma Competition.

J. B. S.—(1) Good, in first class. (2) Too weak, wants sky; second class. (3) Good, first class. (4) Ditto. (5) Use a smaller mask; class 3. (6) Too weak; class 2.

H. HOLMAN.—We cannot understand your letter of 21st inst. What does it refer to?

G. R.—We do not understand what you want to do to your faded prints. Do you mean bleach them right out?

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* **Fourpence** *Every additional* **three words, one penny.** *The name and address of the sender* **must be paid for.** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* **one word**; *compound words count as* **two words.**)

DEPOSITS.—*money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge 1s.*

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* **Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.**

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* **carriage forward.**

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

PAYMENTS *should be made in Postal Orders or* **Postage Stamps.**

ADDRESS.—*All advertisements (which can be received up to* **Tuesday** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR, AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C., who will report upon the apparatus to the* **buyer** *for a minimum fee of* **2s. 6d.**, *or a commission of* **2½ per cent.**, *upon the sale price of the apparatus.*

Cameras, Lenses, etc. — Half-plate Watson's popular A camera, in case, cost £6 15s., sell £4; Ross' 8 by 5 rectilinear lens, £4; also 2in. Thornton-Pickard shutter, stand, etc.—J., 36, Arundel Square, London, N.

Lancaster's half plate camera, Optimus R.R. lens, cheap. Full particulars on application.—63, Dartmouth Street, West Bromwich.

Dark Slides.—Six half-plate double dark slides, 5s. each.—Brown, Firbank, Sedbergh, Yorkshire.

Three Tylar's half-plate metal double dark slides, good condition, light-tight, 7s.—Aston, 93, Pinfold Street, Darlaston.

Dark Tent.—Portable dark tent, with sink, etc., has never been used, size 6ft. by 4 by 4. What offers? Exchange. Wanted, stereoscopic camera.—Clemence, 30, Bath Road, Bedford Park, Chiswick.

Dishes.—Fifty new glass bottom dishes, 10 by 8 to 60 by 40, one-third cost price. Send stamp for list. Must clear.—W., 53, Chalk Farm Road, London.

Exposure Meter.—Watkins' exposure meter, nearly new, 10s. 6d.—G. Furley, School House, Tonbridge, Kent.

Hand-cameras, etc.—Presto hand-camera, twelve slides, screen, box to carry. Offers?—Schofield, 29, Edward Street, Rochdale.

City hand-camera, holding twelve quarter-plates, with lens, revolving shutter, finder, level, price £1 1s. —Knottesford-Fortescue, Bedford.

No. 3 Kodak Regular hand or stand, two finders, solid leather case, practically new, only used once, about 50 films, take 110s.—J. Oldham, 4, Dinley, Church, Lancs.

Swinden and Earp hand-camera, quarder-plate, splendid lens, perfect condition, £4 15s.—Longmore, Dalmally, Trewsbury Road, Sydenham.

Marion's Radial hand-camera, thorough working order, very little used, cost £7 15s. What offers? Approval.—Short, 16, Perryn Road, Acton, W.

Talmer hand-camera, carries twelve quarter-plates, fine portrait or view lens, shutter, finder, etc., good as new, 30s.—Lloyd, 28, Tettenhall Road, Wolverhampton.

Ideal, 1890 pattern, £3 7s. 6d., or exchange.—C. Corder, 77, Buckingham Road, Brighton.

Kodak, 5 by 4 Junior, in good condition, cost £10 7s. 6d., will sell at £6 10s., a bargain; about 12 films on spool.—Apply, c/o Editor, AMATEUR PHOTOGRAPHER, 1, Creed Lane, E.C.

Lenses, etc.—Lens. Splendid quarter-plate portrait lens by Jamin Darlot, Paris, first-class definition, bargain, 20s.—Trengrouse, Yew Tree Road, Birmingham.

Optimus 5 by 4 wide-angle rectilinear, as new, 28s. —Simmonds, 5, Park Road, Crouch End, N.

Half-plate rapid rectilinear lens, fitted iris stops, works $f/8$, warranted to cover, very finest condition, good definition, approval, 30s.—S. Lawrence, 199, Mare Street, Hackney, N.E.

Half-plate Lancaster's Instantograph single lens for sale (no shutter), lowest price 15s.—No. 379, office of this paper, 1, Creed Lane, E.C.

Landscape lens, 5½ focus, excellent for hand-camera, etc., 10s., or what offers?—Male, Top Union Street, Ryde.

Whole-plate rapid rectilinear, new Waterhouse stops, 22s. 6d.—Albert Durn, Wotton-under-Edge.

9 by 7 rapid rectilinear, removable hood, Waterhouse stops, focus 11½in., new, 35s.—Miss Summers, Hillesley, Glos.

Set Darlot's Universal lenses (six) with revolving diaphragms in case, complete, £5 5s.; new single 10 by 8 achromatic view lens with revolving diaphragms, never used, £2 2s.; approval; deposit.—Naunton, The Square, Shrewsbury.

Half-plate rapid rectilinear lens, 18s. 6d.—W. Gibbard, jun., Cambridge Road, Barking.

Whole-plate Ross rapid symmetrical with time and instantaneous shutter, working behind, £5 10s. the two.—F. J. Clarke, Charlotte Villa, Fairlop Road, Leytonstone.

12 by 10 lens and shutter, 35s., or exchange whole-plate.—F. Walmsley, Draper, Sedbergh, Yorkshire.

Sets.—Half-plate camera, lens, three double backs, Thornton-Pickard shutter, in leather case, complete, sacrifice for £3 10s.—W. E. Evans, 48, Fore Street, Trowbridge.

Marion's whole-plate Compacta camera, all movements, and six backs to fit, condition as new, take £2 10s.; McKellen's half-plate reflector focussing hand-camera, covered best morocco and three best double dark slides, no lens, take £2 15s.; half-plate extension bellows camera, one slide, new condition, take £2 10s., or exchange Safety.—G. A. Knight, 8, Elphick Road, Newhaven, Sussex.

Camera, 5 by 4, Optimus rectilinear lens, Eastman rollholder, six Tylar's double backs, tripod stand, dishes, frames, etc., £5, complete.—Haines, 27, Newgate Street, E.C.

Complete quarter-plate set, all movements, four backs, 4-fold tripod, all new, in case, also lot sundries, backgrounds, complete rig-out, cost over £6; highest offer has it.—Körmöczy, 103, Grafton Street, Mile End, London.

Quarter-plate brass-bound special Instantograph, one back, three metal backs, rapid rectilinear lens, stand, leather-bound case, cloth, etc., 63s.—Frank, 184, Queen's Road, Dalston.

New polished mahogany half-plate outfit, complete, 38s. 6d., bargain.—A. C. L., 66, Senrab Street, E.

Quarter Instantograph, complete, three slides, stand, extra *f*/8 lens (iris) to fit, lined case, perfect condition, £3, or exchange good hand-camera.—T. S. Lowe, 284, Old Kent Road.

Lancaster's Instantograph quarter-plate, two double backs, lens, and shutter, view finder, and macintosh case, Adams' Lighting stand, cost 78s. 6d., will take 55s.—B. E. J., 1, Burghley Villas, Fortis Green, N.

Cox's quarter-plate camera and lens, three double slides, three dishes, three printing frames, negative box and chemical stand, in partitioned box, complete, price £2.—Robertshaw, Stocks Hall, Mytholmroyd.

Lancaster's quarter-plate 1892 Merveilleux camera, lens, double dark slide, stand, printing frame, and dishes, 17s. 6d., good as new. On receipt of amount will send above carriage paid.—C. J. Gillett, The Brewery, Moreton-in-Marsh, Glos.

New half-plate camera, three double slides, 4-fold tripod, leather bag, inside velvet, not been used; exchange pneumatic light Safety; approval.—No. 381, office of this paper, 1, Creed Lane, E.C.

Lancaster's half-plate camera, lens, two double slides, stand, waterproof case, price £5; approval on deposit.—R. McGarel Hogg, Pluckley, Ashford, Kent.

Sundries.—Instantograph dark slides, three, perfect every respect, 6s. 6d. each; 7 by 5 rapid rectilinear lens, new, 24s.; solid leather velvet-lined half-plate case, straps, lock, 15s.; approval.—Richard, Halstead House, St. Ann's Road, Tottenham, N.

"The Studio: What to Do in It," by Robinson; Wormald's exposure table; 50 numbers AMATEUR PHOTOGRAPHER; about 30 old "Photographic News." Suitable exchange.—J. Oldham, 4, Dinley, Church, Lancs.

Splendid full-size mellow-toned solo violin, in perfect preservation, suit lady or gentleman, first-class baize-lined lock-up case, and excellent mounted bow, will sell lot for 15s. 6d.; valuable bargain; send on approval willingly; inspection invited, or write.—Miss Carland, 84, High Street, Maldon, Essex.

Telescope.—Binocular telescope, largest and most powerful, by eminent London maker, cost nearly £20, price £5.—Fortune, 18, Union Street, Borough, London.

WANTED.

Hand-Cameras, etc.—Wanted, whole-plate apparatus, also hand-camera; exchange splendid biunial lantern, or first-class half-plate set.—Ashby, Eglwysbach, Denbighshire.

Lenses, etc.—Wanted, 5 by 4 Optimus rapid Euryscope lenses, also Thornton-Pickard shutter for hand-camera; approval.—Young, 118, Islington, Liverpool.

Wanted, 7 by 5 wide-angle and euryscope lens (iris), for cash.—White, Adelaide, Blackpool.

Sets.—Wanted, half camera set, or without lens.—Liversedge, 90, Selborne Street, Liverpool.

Wanted, quarter camera, lens, slides, and tripod, or good magazine hand camera. Offer good Waltham silver lever stem winder.—B., *Chronicle* Office, Northwich, Cheshire.

Wanted, a whole-plate set, or parts of same, must be by good maker, sound order, and cheap. Apply, giving full particulars, P. Holloway, Highworth, Wilts. No dealers need apply.

Stereoscopic Apparatus.—Wanted, modern stereoscopic outfit, or any parts thereof, cheap, for cash; approval.—No. 380, office of paper.

Wanted, Lancaster's stereo. camera, taking 7¼ by 4½.—30, Grove Street, Leek.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Cameras and Sets.—Camera, 10 by 8 finest mahogany, double extension, leather bellows, wide-angle movement, rising and falling front, fine rapid rectilinear lens, Waterhouse stops, two double slides, clips, and catches, and sliding two-fold stand as new, £8 15s.; whole-plate Duchess camera by London-Paris Optic Co., Aldersgate Street, grand lot, all movements, finest mahogany, best leather bellows, double extension, rising, falling, and cross fronts, two double slides, metal divisions, rapid rectilinear lens works *f*/8, Waterhouse stops and three-fold ash tripod, as new, £9 15s.; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; half-plate Lancaster's special brass-bound Instantograph as new, wide-angle movement, double extension leather bellows, etc., Lancaster's lens, iris stops, special see-saw shutter, two brass-bound double slides, folding stand, and case, £4 12s. 6d.; Rapidograph half-plate camera, by Perken, Son, and Rayment, double extension, leather bellows, reversing and swing, three double slides, fine rapid rectilinear "Leviathan" lens, iris stops, grand definition, three-fold stand and case, £6 17s. 6d.; half-plate Underwood's Instanto camera, leather bellows, square wide-angle movement, rising, falling, and cross fronts, double dark slide, quarter carrier, rapid rectilinear lens, Waterhouse stops, and folding stand, £3 17s. 6d.; half-plate "Duke" camera, double extension leather bellows, rising, falling, and panel front, back and front extension, two double slides, metal division, rapid rectilinear, Waterhouse stops, and folding stand, as new, £6 5s.; quarter-plate extending camera, bellows body, rising and falling front by Morley, Islington, good landscape and portrait lens, double dark slide, and folding stand, 22s. 6d.; quarter-plate extra special brass-bound Instantograph, quarter-plate Lancaster Le Meritoi reset, complete, camera, lens, two slides, and stand, best condition, 27s. 6d.; quarter-plate Le Merveilleux set, by Lancaster, complete, 15s.; quarter-plate extending camera, best order, good lens, two double book-form slides, and folding stand, 17s. 6d. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Hand Cameras.—No. 3 Kodak Junior, rapid rectilinear lens, time and instantaneous shutters, adjustable focus, fitted new spool, sixty films (quarter-plate) in leather case, £5 15s; Optimus detective camera, finest Spanish mahogany, brass bound, fitted Wray's 5 by 4 R.R. lens, Thornton-Pickard shutter, two finders, level, etc., as new, £5 7s. 6d.; Adams' Ideal hand-camera, all latest improvements, grand condition, fitted R.R. lens, time and instantaneous shutter, two finders, carries 12 quarter-plates, covered morocco, £5 12s. 6d. lowest; Ariel pocket camera, leather extending bellows, fitted Wray's 5 in. R.R. lens, Thornton-Pickard shutter, three double book-form slides with catches and clips, Taylor and Hobson finder, the set fitted in waterproof case, very light and portable, as new, £5 5s.; Tit Bits hand-camera, good lens, two slides, covered leather, best order 10s. 6d.; Optimus detective camera, Optimus rapid rectilinear lens time and instantaneous shutter, adjustable focus, three double slides, covered leather, two finders, finest condition, £4 5s.; No. 1 Kodak, best order, rapid rectilinear lens, shutter, etc., carries 100 films, in leather case, 37s. 6d.; Radial hand-camera, by Marion, fitted Soho R.R. lens, shutter, focussing, new, £5 16s. 6d.; Houghton's Automatic hand-camera guaranteed as new, rapid rectilinear, rotating stops Thornton-Pickard shutter, carries 12 quarter-plates,, fine camera, £4 10s.; All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City, (late Goy's Medium). second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Dallmeyer No. 3 10 by 8 rectilinear landscape, Waterhouse stops, finest condition, £4 17s. 6d.; whole-plate rapid rectilinear by Parker, Waterhouse stops, movable hood, 42s.; Optimus 9 by 7, portable symmetrical, rotating stops, *f*/11, as new, £2 17s. 6d.; 7 by 5 "Black Band" lens by London Stereoscopic Co., Waterhouse stops, covers well, finest order, 45s.; 7 by 5 rapid rectilinear lens by Newton of Liverpool, Waterhouse stops, as new, 25s.; half-plate rapid rectilinear by Crouch, Barbican, Waterhouse stops, grand definition, 8 in. focus, £2 7s. 6d.; Dallmeyer's 1A wide-angle landscape 5¼ in. focus, rotating stops, covers 5 by 4 plate, £2 10s.; Ross's No. 4 portable symmetrical 6 in. focus rotating stops, as new, 63s.; Crouch wide-angle rectilinear 6 in. focus, rotating stops, as new, 42s.; Laverne 5 by 4 wide-angle rectilinear, finest condition, 17s. 6d.; Taylor and Hobson's quarter-plate rectilinear, iris stops, 5 in. focus, finest condition, 45s.—On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

Magic Lanterns and Slides.—Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

Regulators and Gauges.—Great reduction in price. Either can now be had of Walter Tyler for 14s. each. The largest stock of gas cylinders in England. Best seamless steel, tested and valved, and all sizes at very low prices.

Slides from Negatives and Pictures.—Walter Tyler manufactures and colours slides on the premises, thus ensuring speedy delivery, and prices are most moderate.—Walter Tyler, 48, Waterloo Road, London.

Biunial Lanterns.—If you are in want of a really good biunial lantern, perfect in every respect, call and see Walter Tyler's entire brass fronted, mahogany-bodied, lined with Russian iron, and fitted with new best quality lenses, and sold at a most moderate price. The top lantern will take a 4-wick lamp. These are great bargains.—Walter Tyler, 48, Waterloo Road, London.

Hire Department is now perfect. Largest and best collection of slides in the world; over 200,000 always in stock. Temperance, travels, Scripture, educational, comic, tales, etc. Cheaper than any other house, no extra charge for coloured slides or effects. Special terms for large quantities.—Walter Tyler, 48, Waterloo Road, London.

Lanterns and Slides.—If you wish to hire, purchase, or exchange, you cannot possibly do better than go to Walter Tyler, who makes this business a specialite, and you will thus save dealer's and all intermediate profits.—Walter Tyler, 48, Waterloo Road, London.

Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps. Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; scientifically constructed, not commercial; several whole and half plate for sale, cheap.

The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Science Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

Magic Lanterns, Magic Lanterns.—Largest assortment in the world, cheapest and best, nicely japanned lantern, 4 in. double condensers, portrait combination front lenses, rack and pinion, four-wick lamp, in case, £1 7s. 6d. Others more elaborate, but as cheap.

The Docwra Triple Prize Medal, highest award, supplied to Dr. H. Grattan Guinness, Capt. C. Selwyn, Madame Adelina Patti, and the Royal Polytechnic, etc.

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Fine Triple Lantern; telescopic draw tubes, four set of high-class lenses, £38 10s., worth nearly double. Given away.

Special Triple; mahogany, entire solid brass fronts, £12 12s.; a really good lantern, unequalled.

Elegant Mahogany Biunial; brass fronts, £7 10s.; blow-through safety jets, 6s. 6d. and 8s. 6d.; mixed gas jet, 12s. 6d.; Malden double dissolving tap, 12s. 6d.; regulators, 12s. 6d.; gauges, 12s. 6d.; grand effects; particulars free, before purchasing. Send for Mr. Hughes's grandly illustrated catalogue, over 180 finely cut original wood engravings, price 6d., postage 3d.; separate list of 60,000 slides, price 6d., postage 3d.; pamphlets free; second-hand lists free of bargains.—W. C. HUGHES, Brewster House, Mortimer Road, Kingsland, London, N. Fifty slides, all nicely coloured, on loan for 3s., in special despatch boxes.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

The Amateur Photographer

Telephone No. 1645

Telegraphic Address: VINEY, LONDON

Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 440. Vol. XVII.] FRIDAY, MARCH 10, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 *till* 5 *o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from* 10 *till* 1 *o'clock.*

Our Views.—Our Stereoscopic Competition—Our Monthly Slide Competition—The American Convention—Rules for Judges—Chemical Effects in Prints—A Chance for English Exhibitors—Lantern Formulæ—The Lay Press—Colour Photography—The Public and Photography—Bath and Technical Education—Lantern Competitions—Fame and Photography—Dr. Emerson and Naturalistic Photography—A New Hand-Camera.

Leader.—The New Central Club.

Letters.—Washing Celluloid Films (Stephens)—Exhibition of Photographs in Japan (Pringle, Davison)—Instantaneous Shutters (J. D.)—Angle Formulæ (Wrangler)—National Photo. Exhibition Judges (Wollaston, Hastings).

Articles.—Photographic Chemistry (Conrad)—Pictures and Picture Making (Mummery)—Printing and Developing Chloride Prints (Warnerke)—Theories on Development (Janeway).

The A B C of the Lantern.

Apparatus.—England's Film Varnish—The J. P. Novelties.

Exhibitions.—Blackheath—Fillebrook.

Societies' Meetings.—Bath—Birmingham—Eastbourne—E. London—Glasgow—Hackney—Harringay—Kensington—Leeds—Leigh—Leeds—Liverpool—Margate—Midland—N. Middlesex—Oxford—P. S. G. B.—Tunbridge Wells—W. London—Woolwich—York.

EDITORIAL DEPARTMENT—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Lantern-Slide Competition, No. 45.—Latest day, March 11th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, March 24th, 1893.)

The 31st of this month is the latest date for our Stereoscopic Competition. We offer one gold, and silver and bronze medals and certificates for the best work. We have done away with classes; and either prints or transparencies, not less than six or more than twelve, may be sent in. Mr. W. I. Chadwick has kindly consented to act as judge, and will also briefly criticise the competitors' work, and we shall hope to reproduce one or two examples of the winning work in our pages. Entry forms will be ready this week.

◆

March 11th is the latest date for receiving slides for our Monthly Lantern-Slide Competition No. 45, which is also the last Slide Competition this season. April ushers in a series of print competitions, of which the first, closing on April 13th is devoted to hand-camera work.

◆

The Photographers' Association of America, or, as it is generally called, the "The P.A. of A.," which is a body somewhat akin to our Convention, will meet in Chicago in July during the World's Fair, and will hold an exhibition, at which some valuable prizes are offered. A grand prize of a statue will be given for three prints illustrating "Lucille," by Owen Meredith. A diamond badge and gold and silver medals are also offered. This would be a rare chance for some of the "pot-hunters," only they must be members of the P.A. of A. Mr. A. Heimberger, of New Albany, Ind., is the Secretary, and the subscription is 5 dols.

◆

A very good idea in this competition is the statement of the "rules governing the judges." In England we often have judges governing the rules, but they don't have that in the U.S.A. The judges are told that they have to consider certain points; for instance, for one class the points are (1) historic, (2) originality, (3) composition, (4) lighting, (5) technique. "Ten marks to be the highest for any one point, consequently fifty marks are the most that can be given for any one picture. The standard of this award must be thirty-five marks out of a possible fifty."

◆

No doubt some of our judges would object to this method, but it certainly offers but little chance of favouritism, if properly carried out.

◆

There is in the circular one thing which has bothered us very much, and that is that in the points to be considered for portrait and landscape work, etc., is "chemical effect." We have puzzled our brains, and wondered what on earth this means. We have heard of artistic effect and general effect and the effect of a portrait on a susceptible heart, but what the chemical effect is we do not know. Does it refer to the chemical effect of the colours in the original or what? Will some transatlantic friend kindly shed a lighting effect on this obscure point?

◆

On carefully reading over the classes for the above we find a chance for our English exhibitors, viz., in Class K—one gold, one silver medal, and diploma, for the best foreign exhibit of portrait photography, framed or unframed, delivered to the association free of all charges. Exhibits in this class will be admitted free to the United States by sending the same to Adam Heimberger, 2nd Regiment, Armoury, Washington Boulevard, Chicago, Ill., Secretary of the Photographers' Association of America.

◆

Palmam qui meruit ferat! In our issue of February 24th, Mr. W. Rice quoted a well-known formula for finding the (approximate) relative distances and sizes of discs with the lantern, and ascribed this to the *Optical Magic Lantern Journal*. It is true that it appeared in that paper, but, so far as we can trace, Mr. W. I. Chadwick, of Manchester, was the first to give this in his little work, "The Magic Lantern Manual," 2nd edition, 1885, where he says:—

> An approximate rule, which will be found useful and sufficiently correct for all practical purposes when it is necessary to determine the lantern's distance from the screen, to produce a certain disc with a given lens:—Size of opening in slide, in inches, $= S$; focus of objective, in inches, $= F$; lantern distance from screen, in feet, $= L$; diameter of disc, in feet, $= D$.
>
> $$L = \frac{D \times F}{S}; \quad D = \frac{L \times S}{F}; \quad F = \frac{L \times S}{D}.$$

◆

The *Optical Magic Lantern Journal* also published a table of distances, which is also fathered on the editor; in fact, we believe we may say he claims it as his own, whereas Mr. J. G. Jones published such a table, calculated from Mr. Chadwick's formula in the *Photographic Record*, page 185, No. 8, July, 1889. And we think this date is prior to the founding of the above-named journal.

◆

There is a time in the affairs of the ordinary pressman when business is slack and a dearth of news provails in the Editorial sanctum. Then it is that the fertile brains of the paragraph writers are set to work; the resultant emanations being pars concerning the sea serpent or the big gooseberry, or else some wonderful discovery is announced with regard to colour-photography. The world is informed regularly once or twice a year that some individual has found out how to take photographs in natural colours; and the British working man, seeing the paragraph about the new process in his favourite paper, decides that he and "the missus" will now have their portraits taken, confidently expecting that they will turn out quite as good as oil paintings. Alas that he should be so often doomed to disappointment!

◆

Our old friend "Colour Photography," however, has now turned up in a new dress, and for this we are indebted to the latest addition to Metropolitan evening journalism, the *Westminster Gazette*. In the issue of February 23rd, under the heading of "Possibilities of Photographic Forgery—Colours Defy the Camera," a report of an interview with Mr. Thomas Fall, President of the N.A.P.P., appeared, from which we extract the following:—

> "A paragraph has been going the round of the papers stating that those concerned in colour printing had made a discovery which, in the future, would make it impossible for forgers to counterfeit coloured bank notes, bonds, and cheques. A representative of the *Westminster Gazette* called on Mr. Thomas Fall, of Baker Street, the President of the National Association of Professional Photographers, and asked his opionion upon the statement. Mr. Fall at once replied, 'Well, as a photographer, I should look upon the paragraph as altogether erroneous, and should say that it was written by one who did not know much of the technical part of photography. We often see these paragraphs in the papers, and they are a source of amusement to practical photographers and to the photographic journals. We never profess to photograph in colour; because at present colours defy the camera. Colour photography has made little advance of late. Bank notes are not photographed in colours. If I had a bank note, or any document given me to photograph in colours, I should simply make reproductions by means of having them printed from a block or stone in colours. The document could then be imitated very nearly; but such a thing would never be attempted by means of photography direct. I do not think that any invention will be able to save us doing anything that we have hitherto done in photo-lithography.'"

◆

It is astonishing what ignorance exists even in these days of cheap cameras and photographic civilisation. Many persons who in other respects are well informed, have very crude ideas upon the subject, for one often hears, when "taking" a party of friends and the exposure has just been completed, the remark made, "Can't we have a look at it?" When the inquirer is told that no image appears on the plate until after development, a long-drawn "Oh!" is the resultant response, accompanied by a look of amazement.

◆

At the annual meeting of the Bath Photographic Society, the President, Mr. Austin J. King, stated that the Local Government Board had sanctioned the including of photography in the curriculum of the technical school, and that subcommittees of the society and of the technical education committee had prepared a scheme for the carrying out of the matter. A good many smart Londoners used to be under the impression that Bath and Bristol people were fifty years behind the age. Bath, however, has now shown that it possesses some progressive spirits, and has set an example that the "more enlightened inhabitants" of other towns might profitably follow.

◆

When a society announces an open competition in lantern slides, thereby inducing well-known amateurs all over the country to compete, it is a trifle disappointing to the said well-known amateurs to find that their almost invincible slides are shown through the medium of an old-fashioned and very weak lantern, the operator of which has but an elementary idea of its working. When the customary medal is not forthcoming, the said well-known amateurs are apt under the circumstances to lay the blame on the lantern and its management. Secretaries would therefore do well to see that in all such competitions a lantern with the proper focus and standard light is made use of—not forgetting the competent operator—thus leaving no ground for complaint in any events which may happen to disturb the peace of mind of "well-known amateurs."

◆

A writer in the *Liverpool Courier* waxes merry over the various marketable photographs. He says:—

> "The ascendancy of the 'eternal feminine' as an item of commercial value to the photographer seems undoubted. . . . . It is when you realise the craze for possession of the cold reflex of, say, the Countess of Clancarty that 'true greatness' from the point of view of the photographer is made apparent. The lady in question has been taken in one hundred and eighty different poses, not one of which is out of print. Such is fame! Mr. Gladstone and the Archbishop of Canterbury are left far behind when weighed in the scale against popularity like this, and the fact may be some consolation for Mr. Oscar Wilde, who hangs neglected and fly-blown in a back row of the window display, together with Sir Wilfred Lawson and other nonentities."

◆

On the 14th inst. Dr. P. H. Emerson will lecture on "Naturalistic Photography" before the P.S.G.B. Considerable interest has been felt as to how he will treat the subject after his well-known renunciation.

The cry is, "Still they come!" Messrs. Wormald have sent us a notice of the introduction by them of a new hand-camera which takes four views on a lantern plate. We hope to notice this shortly.

* * *

THE NEW CENTRAL PHOTOGRAPHIC CLUB.

The general meeting on this subject was held on the 6th inst., in the Memorial Hall, and the question thoroughly discussed. Mr. Howson was voted to the chair, and briefly opened the proceedings, and Mr. Bedding, the Hon. Secretary *pro tem.*, stated that he might say that the Club already existed, as they already had numerous promises of support both in membership and money. The main lines of the new Club were as stated in our issue of February 24th, p. 121, and he showed that no existing club fulfilled the requirements. Whilst the new Club was not intended to be antagonistic to any existing institution, the only one on somewhat similar lines which existed was the Camera Club, which was limited to amateurs, with one or two notable exceptions. For the success of the new Club it was essential that there should be a large membership, and this he thought there was every prospect of having.

Letters of regret at inability to attend the meeting were then read, and all had promised support. It was hoped that the new Club would become the permanent home of such photographic institutions as the P. B. A. and Photographic Convention, which were now practically homeless.

Mr. Howson said that he felt, and it was evident that others felt too, that such a club as limned by Mr. Bedding was desirable and would fill a want. Of the greatest importance was sufficient cash support, and he might point out that at Liverpool there existed a club which had permanent quarters, with smoking, reading, and lecture rooms open all day, with an attendant, and that this was done with a membership of about 320, and an annual subscription of one guinea, and surely what Liverpool could do London should do. Several gentlemen had promised a sum of £5 towards the initial expenses of furnishing, and the main objects of the Club were social, combined with photography. The actual locale of the club had not been definitely decided on, but one or two likely spots were being kept in view. A radius from Ludgate Circus had been suggested as the most central and get-at-able place from all parts of London.

A long discussion on several points ensued, and finally an executive working committee consisting of Messrs. Howson, Freshwater, Drage, Hodges, Fall, Oakden, Fenton Jones, Birt Acres, Austin Edwards, Beckett, Snowden Ward, and Wall was elected, and it was suggested that they should consider the question of (1) rules, (2) premises, and (3) capital, and method of raising the same. Before the meeting closed those present were invited to hand in their names and addresses as intending members, and we are pleased to learn that no less than eighty names were received.

It was suggested that all who wish to join should send in their names, and that after a certain number had been received an entrance fee should be charged. We feel sure, not only from the interest evinced on Monday night, but also from the numerous letters that have been received from all over the country, that the Club will come to a successful issue, and we shall be glad to receive the names of any who wish to join, or they may be sent to Mr. Bedding, 2, York Street, Covent Garden, W.C.

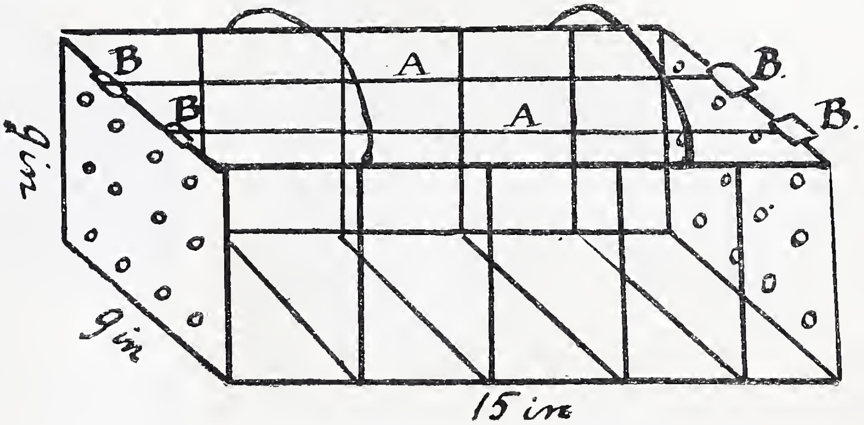
Letters to the Editor.

WASHING CELLULOID FILMS.

Sir,—I send you a description of a simple contrivance for washing celluloid films, which may be found useful to those who use them.

Having myself almost discarded the use of plates in favour of films, I have for some time felt the want of some means of washing them after fixing, without the risk of their rubbing against one another as they do in a flat dish. I have lately had a frame made for me, such as is shown in the accompanying rough sketch. It is made of stout tinned brass wire, the ends being of tinned copper, which may or may not be perforated, as shown in the sketch, and has two handles of bent wire. Two wires are laid on the frame lengthways, being held in position by a bend in the end wires, and flaps folding over them (B B). On these two wires are strung a number of clips, such as are sold by hosiers for securing neckties, costing 1d. each, with a small indiarubber washer between the clips. Each film is suspended from two clips, one on each wire.

The apparatus may be made of any dimensions; mine is 15 in. by 9 in. by 9 in., and this will hold nine or ten films, whole-plate or under. For smaller sizes the metal ends would probably not be necessary. I have a galvanised-iron tank 1 in. larger each way than the frame, into which the latter is plunged. The tank has a waste tap at the bottom, and the water may be kept running through or be renewed at intervals, as most convenient. When the washing is completed, the frame is lifted from the tank, and stood or hung in any convenient place till the films are dry. Care must be taken to hang the films all facing one way, so that they may curl in the same direction when drying.



The tank and frames were made for me by Messrs. T. C. Williams and Sons, of London Street, Reading, and cost 35s., but this price would be reduced if there were any demand for the article.—I am, etc.,

Charles Stephens.

* * * *

EXHIBITION OF PHOTOGRAPHS IN JAPAN.

Sir,—You were good enough to make an announcement in your valuable journal of the collection of photographs we had the pleasure a short time ago of bringing together from English and foreign photographers for an exhibition in Japan.

It may now be of interest to state that we have just received information from Professor W. K. Burton, which tells us that the exhibition will shortly be opened, and will be held both in Tokyo (the capital) and in Yokohama (the principal open port); that the enterprise is taken up with much enthusiasm (shown by a general desire to have the honour of guaranteeing the expenses of the undertaking); that the original idea of appointing three leading Japanese artists to adjudicate may have to be extended to selecting ten, as there are so many "schools" of art in Japan that it is proposed to give the designing of a bronze medal for the occasion as a competitive exercise to advanced students of the Government Art College; and that the exhibits (which were all sent out unframed) will be framed in a quiet way, and the exhibition made attractive in every possible manner. We may add that a very fine collection of about three hundred English and foreign photographs, probably never before surpassed, was kindly contributed in answer to our requests by the following exhibitors:—Messrs. Horsley Hinton, Lyd. Sawyer, E. Beck, R. H. Lord, Alfieri, Hollyer, Keene, Scott, H. M. Hastings, H. Baker, H. P. and R. W. Robinson, F. Evans, Sutcliffe, H. W. and L. C. Bennett, Mansfield, Harding, Douglas, Cole, Burchett, Davison, Crooke, Halford, Greger, Wilkinson, jun.

Clement Williams, Keighley, H. Stevens, Bright, Ennis, Lange, Bhedwar, Briant, Guardia, Wellington, Tyser, Smith, Van der Weyde, Calland, Lee, Bergheim, Ulrich, Dumont, Bedford (the late W.), Bridson, Terras, Cassels, Dresser, Alexandre, Colls, Strakosch, Cobb, Gale, Ramsay, Rigaux, Colard, Loppé, Cameron (including some of Mrs. Cameron's pictures), Lyonel Clark, Andreæ, Watzek, Blechinger, Gèruzet, and Count Primoli, Baron Nathaniel Rothschild, and Mrs. Main. In many cases the contributions consisted of the best work of the exhibitor, so that it will be seen that everything has been done to make a representative exhibition, and one likely to interest our Japanese co-workers in photography. We shall hope to be granted the favour of the insertion of a note or report of the exhibition in your columns when further information is forwarded to us.

(Signed) G. DAVISON.
A. PRINGLE.

* * * *

INSTANTANEOUS SHUTTERS.

SIR,—It appears that "C. P." has arrived at his curious conclusion as to the relative efficiency of his shutter through overlooking the fact that although both were released simultaneously, the first commenced to expose the whole plate at once, while in the focal-plane shutter the slot had to traverse a portion of the plate before overtaking the image of the dog. The exposure was not longer but later.

G. D.

* * * *

ANGLE FORMULÆ.

SIR,—It would be interesting to your mathematical reader if Mr. William Rice would give a mathematical proof of the proposition on which he bases his calculations on page 145 of the current volume of the AMATEUR PHOTOGRAPHER, namely (I quote the letters he uses), that the angle BGC bears the same ratio to 90° that the line AC bears to GD. This is true in the particular case when G is as the extremity of the diameter, namely, at E, but it does not follow that it is universally true. In fact, it is easily shown, in a case that can be tested, to be untrue. Suppose that G lies on DA, produced so that the produced part is equal to the radius, then GD will be three times AC, and the angle BGC, according to Mr. Rice, would be one-third of a right angle, or 30°, and, therefore, the angle FGC would be 15°. Suppose we take AC the radius as unity, then FC and AF are each (Euclid i. 47) equal to $\frac{1}{\sqrt{2}}$, and AG is equal to 2.

$$\text{From this } \tan FGC = \frac{FC}{FG} = \frac{\frac{1}{\sqrt{2}}}{2+\frac{1}{\sqrt{2}}} = \frac{1}{2\sqrt{2}+1};$$

But we know that tan. $15^\circ = 2 - \sqrt{3}$, and these two results do not agree.

I am afraid Mr. Rice has assumed as generally true that which is only true in a particular case, and therefore that all the calculations based on this assumption are without value.—I am, Sir, yours, etc.,

A CAMBRIDGE WRANGLER.

[Our correspondent loses sight of the fact that Mr. Rice has been careful to state that these formulæ are purely empirical, giving not absolute mathematical exactness, but a result which will be found to be within one degree of the true angle with any proportions that the photographer is likely to meet with. We have tested these formulæ, and if any of our readers will also do the same and compare the results obtained with those which will be found by the well-known rule of dividing the base line of the plate by the focus and reference to the tables of angles, as published in the various almanacks, the "Dictionary of Photography," and also Steinheil's table of angles, to be found on p. 319 of our issue for October 30th, 1891, the two results will be found practically identical. Therefore our correspondent's last paragraph is certainly hasty and uncalled for.—EDITOR.]

* * * *

NATIONAL PHOTOGRAPHIC EXHIBITION JUDGES.

SIR,—We have the pleasure to inform you that the following gentlemen have consented to act as judges at the above exhibition, which opens on Monday, the 10th April, at the Crystal Palace:—

Hon. Slingsby Bethel, Valentine Blanchard, J. Pattison Gibson, F. Mason Good, Richard Keene, Dr. G. Lindsay Johnson, M.A., B.Sc., W. Lang, jun., Edgar G. Lee, F. Stanley Little, Peter Macnab, H. L. Noel Cox, Francis Powell, R.W.S., J. P. Slingsby Roberts, Leslie Thomson, and F. York.

Your kind insertion of this letter will be esteemed by—Yours, etc.,

S. G. BUCHANAN WOLLASTON } *Executive.*
CHARLES W. HASTINGS }

Crystal Palace, March 6th, 1893.

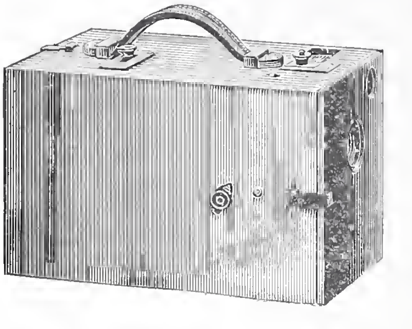
Apparatus.

ENGLAND'S FILM AND DRY PLATE VARNISH.

J. DESIRE ENGLAND, of 21, Charles Street, Royal Crescent, Notting Hill, W., has forwarded us a sample of the above. It may be applied either in the ordinary way or with a brush, and dries bright without the application of heat. For films it may be applied with a brush, and, used in this way both for films and glass negatives, we have been able to obtain an even coat of varnish without any wave or brush marks. Amateurs will find the use of this very advantageous when they are not *au fait* to ordinary varnishing.

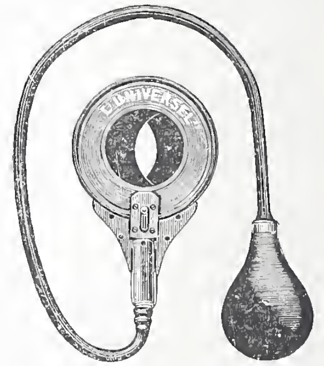
THE J. P. HAND-CAMERA.

John Piggott, of Cheapside, E.C., has submitted to us one of the above, which is a neat, well-made walnut box, and is fitted with an R. R. lens, with Waterhouse diaphragms, and a quadrant shutter working at the back of the lens. Twelve plates, in sheaths, are placed in the back of the camera, and after exposure, a lever on top is pushed to one side, and the plate falls down into a well, and is kept from shifting about by a lever arm actuated by the turnbuckle on the side of the camera. A safety shutter is also provided, and the shutter may be set without exposing a plate. It is a well-made, efficient camera, and cheap at 62s.



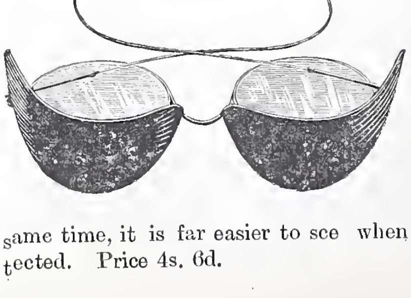
THE J. P. SHUTTER.

The above firm have also introduced an ever-set eyelid shutter, which may be fitted either on to the hood of the lens by a very ingenious spring arrangement, or may also be fitted between the lenses. Time or instantaneous exposures may be given at will by raising a small pin, as seen in the diagram. It is constructed entirely of metal, and is not likely to get out of order; price 17s. 6d.



THE J. P. DARK-ROOM SPECTACLES.

These are designed for protecting the eyes from the glare of the dark-room light, and may be obtained to suit any sight. The importance of having the eyes thus protected is very little recognised, but, at the same time, it is far easier to see when the eyes are thus protected. Price 4s. 6d.



General and Photographic Chemistry. — XV.

By E. C. Conrad, F.C.S.

THE NON-METALLIC ELEMENTS AND THEIR COMPOUNDS.

(Continued from page 98.)

Most of the carbon compounds can be arranged in one or other of the following classes, with the exception of those compounds whose composition and reactions are unknown or imperfectly understood :—

(1) *Hydrocarbons and haloid derivatives.*

(2) *Alcohols,* which may be regarded as hydrates of hydrocarbon radicals. In accordance with this, the formula (C_2H_6O) of ethylic alcohol or spirits of wine should be written C_2H_5OH. There are three descriptions of alcohol, called primary, secondary, and tertiary, which differ in behaviour when oxidised. The *Phenols* are an important class allied to the secondary alcohols ; an example is phenyl alcohol, commonly called carbolic acid, C_6H_5HO.

(3) *Ethers.* These bodies are alcohols in which an atom of hydrogen is replaced by the molecule of a hydrocarbon radical. There are two descriptions of ethers, called simple or mixed. Eq. : $\left.\begin{matrix} CH_3 \\ CH_3 \end{matrix}\right\} O.$ $\left.\begin{matrix} CH_3 \\ C_2H_5 \end{matrix}\right\} O.$

The ethers are all volatile liquids of an aromatic odour.

(4) *Aldehydes and ketones,* formed by the partial oxidation of primary and secondary alcohols respectively. An aldehyde is always converted by further oxidation into an acid having the same number of carbon atoms as itself. A ketone on oxidation splits up into a mixture of acids, each containing a smaller number of carbon atoms.

Examples of partial and complete oxidation of primary and secondary alcohols :—

Primary Alcohol. Aldehyde. Acid.

$$C_2H_6O + O = H_2O + C_2H_4O + O = C_2H_4O_2$$

Secondary Alcohol. Ketone. Acids.

$$C_3H_8O + O = H_2O + C_3H_6O + O_3 = C_2H_4O_2 + CH_2O_2$$

Tertiary alcohols on oxidation behave as ketones without the formation of any intermediate compound.

(5) *Acids.* They are all derived from alcohols by oxidation, but there are a large number of acids known of which the corresponding alcohols have yet to be discovered.

(6) *Amines and alkaloids.* The amines are basic derivatives of ammonia. The alkaloids—quinine, strychnine, etc.—are similar compounds.

(7) *Compound ethers,* formed by the union of an alcohol and an acid. Eq. : $C_2H_5OH + C_2H_3O.H = C_2H_5.C_2H_8O_2 + H_2O$.

(8) *Organic-metallic compounds.*

Note.—In order to prevent this portion of the subject extending beyond reasonable limits, only some of the more important compounds will be considered, without following any very definite order.

Methane.—Syn. : Methyl-hydride, marsh gas, light carburetted hydrogen, $CH_4 = 16$. Oc. : In coal mines as fire damp, also in marshes and stagnant water, it is found by the slow decay of vegetable substances. M. : (1) By the dry distillation of various organic substances, as in the manufacture of coal gas, of which it is the principal constituent. (2) By passing the vapours of hydrogen sulphide and carbon bisulphide over red-hot copper. Eq. : $2H_2S + CS_2 + Cu_8 = 4Cu_2S + CH_4$. (3) By heating a mixture of dry sodium acetate and sodaline (caustic soda and quicklime). Eq. : $C_2H_3NaO_2 + NaHO = CO_3Na_2 + CH_4$. P. : Methane is the second lightest body known, being only eight times heavier than hydrogen. Methane is the first term of the $C_nH_{2n} + 2$ series, and in common with the other members of this series is an inert substance resisting the action of the most powerful reagents. It is this property that has led to the general name of *paraffins* being given to this series. Methane is a colourless, inodorous gas, burning with a yellow flame. In bright sunlight chlorine decomposes this gas with separation of carbon, but in diffused daylight the action takes place slowly, $CH_3Cl, CH_2Cl_2, CHCl_3 CCl_4$ being formed in succession with a corresponding amount of hydrochloric acid. Eq. : $CH_4 + Cl_2 = CH_3Cl + HCl$.

Ethene.—Syn. : Ethylene, olefiant gas, heavy carburetted hydrogen, $C_2H_4 = 28$. Oc. : In coal gas. M. : (1) By the dry distillation of many organic substances. (2) By heating strong alcohol with strong sulphuric acid, the acid withdraws the elements of water and the alcohol is decomposed. Eq. : $C_2H_6O - H_2O = C_2H_4$. Great care and careful heating are necessary to prevent frothing and blackening. A better method is to pass alcoholic vapour into the acid heated to about 160° C. P. : Ethene is a colourless gas, with a slight odour ; it burns with a bright white flame. It is decomposed by heat, and unites with the halogens, forming oily liquids. It is slightly soluble in water, and can be condensed to a thin liquid. Ethene is the starting point or first known term of the *Olefines* or C_nH_{2n} series (the compound CH_2 not having been isolated).

Acetylene, or Ethine, $C_2H_2 = 26$.—Oc. : In coal gas. M. : If the carbon poles of an electric arc are surrounded by an atmosphere of hydrogen, acetylene is produced by the direct combination of its elements. It is also produced by the incomplete combustion of hydrocarbons. By passing a mixture of methane and carbon monoxide through a red-hot tube. Eq. : $CH_4 + CO = H_2O + C_2H_2$. P. : A colourless, poisonous gas of a disagreeable odour. It burns with a bright smoky flame, is moderately soluble in water, and cannot be condensed. Mixed with chlorine, acetylene explodes with separation of carbon. It is the first term of the $C_nH_{2n} - 2$, or acetylene series.

Some Derivatives of the Hydrocarbons.

Methyl chloride, or chloromethane, CH_3Cl.—M. : By the direct action of chlorine on methane, or by heating a mixture of salt, wood spirit, and strong sulphuric acid. P. : It is a gaseous body, colourless, and of a peculiar odour and sweetish taste, almost insoluble in water, burns with a pale greenish flame. U. : In the production of methylanilin, from which *methyl orange* is made.

Chloroform, $CHCl_3$. M. : By distilling alcohol with chloride of lime. Eq. : $2C_2H_6O + 5CaCl_2O_2 = 2CHCl_5 + 2CaCO_3 + 2CaCl_2 + CaH_2O_2 + 4H_2O$. P. : It is a thin, colourless oily liquid, of an agreeable ethereal odour and sweetish taste, its S.G. at 0° C. is 1·52, and it boils at 61° C. Chloroform dissolves in alcohol or ether, but is scarcely soluble in water. U. : Its vapour inhaled in quantity produces temporary insensibility to pain. Chloroform dissolves quinine, narcotine, caoutchouc, copal, amber, etc.

Iodoform, CHI_3. M. : By heating iodine with alcohol and sodium carbonate, or by adding an alcoholic solution of potash to tincture of iodine. Eq. : $C_2H_6O + 2KHO + I_8 = 2CHI_3 + 2KI_3 + 3H_2O$. P. : Crystallises in yellow shining plates, melts at 119° C. ; soluble in alcohol, insoluble in water. Used in ointments.

Trimethylanime $(CH_3)_3N$. M. : By the destructive distillation of the residue left in the manufacture of beet sugar. P. : A very volatile liquid boiling at 10° C. It smells of herring brine, and is easily soluble in water. U.P. : It is sometimes used with pyro in alkaline development.

(To be continued.)

Pictures and Picture Making.

BY H. A. MUMMERY.

(*Continued from page* 149.)

NOW, after this long introduction, I am coming to what I want to speak to you about, viz., composition. We may look at the drawings of two men, both of which are of the same strip of country, both equal in merit, yet one pleases and the other does not. One perhaps takes in a little bit to the right hand or left hand, or has in a figure or some cattle, which the other lacks. It is a picture because of this, in fact it is composed; its orderly arrangement pleases us —we recognise a purpose in it. Now we paint a picture or take a photograph for the sake of some particular thing that pleases us; the rest of the picture is subservient to this main thing, should help to make it more beautiful—accentuate it. Nature is fond of showing this marking of a principal object and the dependence of the lesser. You will notice it in most of our beautiful leaf forms; take, for instance, the herb Robert, a very delicately cut leaf; and most beautiful is the end of a spray of blackberry. And here is expressed the fundamental principle of our composition, a harmoniously-balanced whole, and yet one part taking precedence above the others. In a well-composed picture there must be a balancing of the two sides, a balance either of masses or of interest, or even both.

A very pleasing form of composition is the one shown in Turner's "Drachenfels," where the masses are unequal, but where the greater interest of the smaller mass makes a perfectly-balanced picture. Of course I need not tell you that the less the method of composition forces itself upon the spectator, the better is your picture composed. In the "Crossing the Brook" and the "Vale of Tempe," the balance is preserved by the masses, which, though pleasantly dissimilar in shape, are of pretty equal importance.

The weakest part of a picture is the centre, which should be kept as quiet as possible; central composition is possible, as in Turner's "Norham Castle," but it requires so much arrangement that it is of little use to the photographer. One does not come upon rivers, as a rule, where the cows, boats, and men are so conveniently and beautifully arranged along the banks as Turner has shown them here. What I should say is, at once the simplest and yet most beautiful form of composition is that where interest on one side balances mass upon the other. I referred to this a few minutes ago, you see it is so often found in nature, the end of a clump of trees on one side of your picture, the stretch of distant country on the other, so very pretty and yet so common; or even if you want to do a bit of composing on your own account it may be easily done by the addition of a figure, or figures may give the interest sufficient to balance the larger mass of the other side, or it may be done by the grouping of some clouds when you come to print your skies in. Here is an instance of such interest being given by the sky and by figures; this is one of Turner's "Liber" prints called "Hedging and Ditching," it is a wonderful bit of composition, just like nature would do it herself, composed in what Constable used to call "God Almighty's style" ("Sir Francis, I am going to try and paint it in God Almighty's style"). Turner, who is the master of composition, often used to compose his pictures by lines, as well as masses. You will notice if you examine his work carefully how sometimes a series of curved lines are formed leading the eye up to the principal object. Then again, he often made use of repetition of forms. You have noticed, perhaps, in nature repetition in calm and restful hours, the reflections in the water, or the monotonous procession of clouds across the sky, or often waves of the sea rippling on to the shore; the eye is soothed and lulled because there is sufficient likeness between the various objects to cause monotony, there is no fresh effort of the eye needed as we look from one form to another. In a good composition not only should there be a balance of the masses, but also a concentration of the light as much as possible on one part, and the shadow on the other (of course, it is false to try and force the light and shade of a picture); but in the choice of your subjects you should choose those which are so arranged. Nature as a rule is wonderfully broad in her light and shadow, except in some flickering effects which I have referred to, and which I think do not as a rule lend themselves to the making of successful photographs. I have been speaking mostly about harmony in art, but there is also another great factor, namely, contrast, where one object sets off another, not by any harmonious likeness, but by unlikeness, a warm colour against cold, light against dark, and so on. I need say nothing to you about contrast, except that it is the life and soul of nature; there would be only a blurred mass in the place of our glorious wide-stretching landscape if it were not for the difference in objects which make up contrast; but about strong contrasts, although they are frequent in nature, and have been most successfully treated by our greatest painters, yet they are seldom pleasing to my mind when reproduced by the camera. Look at Norham Castle against the glowing evening sky; you couldn't get that richness and depth, couldn't see into the dark masses and feel the atmosphere between you and them in a photograph as you can in the picture. I may be wrong, but I think this is one of the limitations of your art. Well, coming back to composition, one of our well-known artists remarks: "If we look over a number of instantaneous photographs we may pick out many that in composition and effect are beautiful pictures, and there is no possibility of contrivance in those as there is when the incidents are arranged for the slower processes of photography. It is curious to notice how the less the figures are aware that they are being taken, in other words the more natural the composition is, the more beautiful it often becomes." Whenever we make any alteration, put figures or skies in, we ought to strive for the same unity of purpose and simplicity that nature uses. It is not a *good* plan to put in a heavy, unbroken sky with a full sunshiny country underneath it, or a stormy sea with a gentle, quiet sky above it; such effects may be novel, but they are hardly beautiful. Don't for a moment think that I should accuse anyone here of such absurd blunders, but it really takes much study from nature to avoid doing things almost as bad, and if your photography is to consist in merely choosing a view and taking it without any other additions, yet to do that choosing successfully wants much care and loving study. Nature is such a big thing, and when you can only take home a bit, it is such a difficult thing to find out which is the best bit! When selecting a subject one is so often led away by interesting details! But it is a very good plan to half close the eyes, which will enable you to see the general grouping of the form and light and shadow without being disturbed by the details; a piece of cardboard with a square hole cut in the middle forming a frame is also useful to look through, and enables you to see how far you can take your picture, and what to leave out or take in. The French consider that a landscape is not satisfactory as a picture, unless it comprises the three planes, the foreground middle distance, and distance. I certainly think this is true; foreground alone is never very satisfactory as a picture, people want distance, something they can look into, especially when they are much shut up in rooms. When the middle distance is missing it is rather suggestive of theatrical scenery, where the rocks or foreground trees stick up right against the distance without any intervening plane. I should like to make a few remarks about figure subjects, although it is really quite outside my own work. Our later nineteenth century figure painting is very wonderful, not but that the human figure was not painted very wonderfully indeed long before our time, still there has been a distinct recognition of a natural law that makes our modern pictures very telling. Everyone has noticed, perhaps, that when they look attentively at any figure or object close to them, the eye being focussed upon that particular object, sees the environing objects in some degree softened, because they are out of focus. Now, although this is such a constantly occurring phenomenon, it has not always been recognised as a principle in art, although some of the best work of the old masters is realistic enough, still up to within quite recent years, and even now, you see such sharp, clear, detailed work brought right up against strong foreground figures, that background, middle distance, and foreground all stick together in a bunch. If anyone were to paint a landscape to some degree of finish, and then were to paint figures in, making them the subject of the picture, the landscape which was before pleasing enough, would immediately look out of keeping. I will refer you to the best French figure work for instances of realistic painting. I think in some cases it is carried too far, perhaps, and the background is blurred and softened away into nothing to accentuate the foreground. Still, the principle is true nevertheless.

Now, a good many photographers have a fatal gift in their figure pictures of keeping everything so sharp and clear that the secondary parts of the picture compete with the primary, and frequently the object which catches the eye first is something of no importance whatever, whilst the principal object has to be sought out. They seem to be afraid of having anything a little out of focus, yet when you look about you, say, at a view, and regard it as a whole, you cannot see it all in focus. But people mostly look at nature bit by bit, and the focus of the eye constantly changes, so everything is kept sharp. But remember a picture is a small thing, and by standing at the right distance it is taken in by the eye as a whole, and I think a certain insistance on this law is necessary, both in landscape and figures, to produce really telling pictures; more perhaps in figure work, as foreground figures claim our attention more closely than any other foreground subjects, even if they be of the same strength. Look at these two copies of pictures by Jules Breton; although there is a lot of very careful and finished painting in the stubble and herbage, yet the figures stand out from it all. Now that is just the way Nature does it. There is another little matter I should like to mention which perhaps will sound like treason to some of you, and that is that photographers in making *pictures* had better stick to motionless figures, or, at any rate, to figures in very quiet action, as photography is a very bad interpreter of motion. Some people think that photography is the only true interpreter of motion, still we seldom see photographs of action that convey to the mind the idea that the figure is doing anything else than making absurd poses. Remember art only deals with the appearance of things, and has little to do with what they really are; instantaneous photographs, although they are right, are not of any artistic value other than by throwing perhaps a little light on the subject, still they never look right. When we look at a figure doing anything we see in a flash the whole action, and, in some cases, no part of it, however carefully drawn or photographed, would perhaps clearly explain that action. Some actions when reproduced are never happy, and those that are so are suggested by choosing a certain portion of the action. This can but be the result of long study of the human figure. Look at this figure of the sower by Millet. If you go on photographing through all time you'll never equal it. The motion and actions in the figures of the old masters, however wonderful, can hardly be said to constitute the most interesting or beautiful phase of art. Our modern figure painters—those at any rate who have treated the human figure in its most romantic and beautiful side, both clothed and nude—have been content to treat it in repose. Think of that beautiful figure of the man mowing in Walker's "Harbour of Refuge." It is instinct with life, but notice he is right back ready to swing round. You could not have got that go into the figure had you taken him in the midst of the swing. There *is* a wonderful sweep about mowing when you see the whole action, but it is suggested perfectly in art only in this one part and that just before the action. So, too, in Millet's sower you get a suggestion of motion rather than actual motion. The figure would not stalk so grandly and mysteriously across the ploughing if the time chosen was when one leg was either near to or passing the other If you look at the work of Millet, Bastien, Lepage, Frederick Walker, and many others, who have shown us such wonderful grace and beauty in the human figure, and that, too, in our every-day life, in people such as we may see walking along our streets, or striding across our fields at any time, you will notice that they have been most successful with the figure in repose. There is a feeling display of pride of power in those figures which sprawl and twist about the canvasses of many of the old painters, especially some of those of the last century, which is fatal to true art. Many photographs of figures in repose, especially when the figure is unconscious of being taken, are satisfactory in every way, and are true works of art in every sense of the word. With regard to posing of figures, that depends very largely on your own taste, and that of your model too. I can say nothing about that. Most photographs of composed figure subjects that I have seen have rather an unnatural look—the figures are too self-conscious and stiff, the accessories showing signs of having been arranged. This, of course, is very difficult to get rid of. Although it is constantly noticeable in the work of the clumsy painter, yet it is not seen in the work of the true artist, because he is working to an ideal, and he puts the life and soul into his posed models or arranged accessories, and makes them look right. As far as portraiture is concerned, I can say nothing; it is so excellent. There certainly seems a lot of retouching done, too much sharpening of eyebrows and lashes, of dark touches and high lights, dotting of eyes, till they look quite badly; but this, I fancy, is due to the bad taste of the public rather than to the photographer, as one is constantly coming across portraiture of the highest artistic excellence. Again, some destroy the delicate quality of their flesh by strong dark shadows; the camera does not seem to see the delicate transparent reflected lights in the shadows that the artist does; still all this can be and is avoided by the man of taste.

Mr. Leon Warnerke's Process of Printing and Developing Gelatino-Chloride Papers.

On the 6th inst. Mr. Leon Warnerke gave the first public demonstration of his process of printing, developing, and toning gelatino-chloride papers, at a meeting of the South London Photographic Society in Hanover Hall. Mr. F. W. Edwards (President) occupied the chair.

Mr. Warnerke in his opening remarks referred to the new developers which had recently been placed in the hands of photographers, and stated that he wished them on that occasion, however, to go back to the time when gelatine was not invented. The negative then was made of waxed paper, and gallic acid was used for developing. Whilst he was staying at St. Petersburg some few months back, he had to contend against an almost total absence of light in carrying on his photographic work. It was quite an exceptional winter, 35 deg. below zero being registered. He was obliged to do some experimental work in using different printing papers, and those he used were the Ilford printing-out paper, Eastman's Solio paper, and Liesegang's Aristotype paper. He simply exposed these papers a very short time, and then developed up the image by means of gallic acid. He knew the photographers generally could not spare the time and labour necessary for much printing when the sun was shining, simply because they were engaged in offices and business generally, and when they came home it was nearly too late for anything to be done. For that reason he was glad to be able to help the photographer, notwithstanding his being occupied during the best part of the day, still to make his exposures with the certainty of obtaining a good result. He intended to show them some prints which he had made for this purpose the previous day, and to develop them before their eyes. He purposely took several papers which existed in London (the three before mentioned), and his experience was confined to these. He also intended to make an exposure there by means of the magnesium ribbon. He considered that the Eastman paper was the most suitable for this process. He then showed his audience a really good negative developed with amidol. To get a print, all they had to do was to expose a piece of paper from a few to any number of seconds; they could expose until the image was only just visible, or they could push the exposure until the image came out almost entirely, and they could get a good result either way. With a short exposure, however, development lasted longer. In St. Petersburg he generally used an incandescent gas lamp. They were, however, very little used in this country, and he did not wonder at it, for those in use over here were of a very miserable description and yielded a very poor light. On the Continent they were very largely used, and he considered they were far superior to the electric light—certainly, three times the amount of light seen here. The Ilford paper printed blue, but Solio paper and Liesegang's Aristotype printed red. He showed a print on Ilford paper which had had about one minute's exposure at four o'clock on that afternoon before he started. It could, however, have been pushed a good deal more. He then exposed a piece of Solio paper by burning about two feet of magnesium ribbon in front of the negative. When the paper was extracted a faint image was observed on it. He gave the following formula for development:—

Water	1,000
Acetic acid	10
Soda acetate	10
Gallic acid	5

When this is dissolved, he prepares a 10 per cent. solution of acetate of lead, of which he takes 10 parts, and adds it (after being filtered) to the above. For development 1 part of the solution to from 5 to 10 parts of water. He, however, on this occasion, diluted with 6 parts of water. He placed the print face upwards in a dish, and poured the developer over it. Gradually the print gained in detail and density, and eventually appeared as fully printed out as if it had been exposed in the ordinary manner. It was then placed in a bath of water, to which had been added a pinch of ordinary salt, which served to stop the development proceeding any farther. He used the following combined toning and fixing bath:—

Water	1,000
Hyposulphite of soda	100
Acetate of lead	10
Chloride of gold (1 per cent. solution)	20

The toning could be stopped at any stage that was desired, and it was much easier by this process to get uniformity in the result. If the print was fixed only it would become a red brick colour, but when properly toned and finished it was impossible to distinguish it from a print toned in the ordinary manner. The Ilford paper was the slowest paper to print. In answer to a question as to the permanency of the process, he stated that he believed it must be more permanent than any other method of dealing with such papers, as images that had been developed up were always considered to be more permanent than those which had been printed out fully in the customary manner. He showed one of Schwarz's combined toning and fixing cartridges, and wanted to know if Mr. Powell (who was present) could make a similar cartridge from the formula he had given. A beautiful colour in sepia could be obtained with the platinum toning bath. If a weak negative was being used, it was best to have a more concentrated developer, and with a hand negative a much more diluted solution. He also gave a formula for separate toning and fixing baths, but he did not advise their use as much better results could be obtained with combined toning and fixing solutions. He made another exposure, and developed, toned, and fixed several prints from negatives by Mr. George Davison, all of which turned out satisfactorily. Lead acetate did not affect the permanency of the print, but gave perfect whites, and prevented them from otherwise turning yellow. He had used this system of development for the waxed paper negatives before 1848; the system therefore was scarcely a new one. By this means a great deal more vigour could be obtained from a weak negative by prolonged development.

Theories on Development.*

By JOHN H. JANEWAY, M.D.

I LISTENED with much pleasure and great interest to the lecture of Dr. Mitchell, delivered at the last meeting of this society, and was especially gratified to find that some opinions of mine, held for some time, regarding development were supported by such an able and eloquent advocate. I refer principally to the building down or etching of the film of the dry plate in contradistinction to the building up in the wet plate, by the application of the alkaline developer, which, to my mind, accounts partly for some of the mishaps that frequently occur to all of us. But I think it hardly fair that the doctor should so summarily have dismissed the photo-physical part of development; especially so in view of the lately very striking discoveries made in regard to light. I refer to its production of sound. It was found, so the report states, that when a beam of sunlight was thrown through a lens on a glass vessel containing lampblack, coloured silks, worsteds, and other substances, the beam of light being cut up by a revolving disc so arranged with slits as to make alternate flashes of light and shadow, sound was heard, the ear being placed close to the glass vessel, so long as the flashing beam was falling on the vessel. By continued experiments a more wonderful result was obtained. A prism being interposed between the disc and the lens it was found that sounds were given with different intensity by different parts of the spectrum, and at times no sound was heard in other parts of the same. The report goes on to say that when the red played on the green, or green upon the red, the sounds were the most intense of all, but when blue was used there was little or no sound given off. The published account of these experiments in the *Art Journal* are not as full or well arranged as one would wish, and we will anxiously await further developments. But from these experiments, if correct, it will be necessary to give to light other powers than have been conceded to it, and will considerably modify, if not change entirely, the theories of the formation of the latent image as now held. It is well known that in regard to the formation of the latent image and its subsequent development there have been three classes of investigators and defenders, two of these classes holding very widely different views on the subject,—the photo-physical, who claim that the action of light by its dynamic force so arranges or disarranges, as the case may be, and so makes less stable, the molecules of silver held in the gelatine film as to enable the developer to bring forth and render visible the image unseen until action has taken place; the photo-chemical, who claim that it is a tolerably certain fact that under the action of light the haloid of silver, the bromides, chlorides, and iodides have a tendency more or less powerful to return to the metallic state, which tendency is promoted and made permanent by the action of developers which are always reducing agents; that is, they are substances which are able to reduce the soluble salts of silver to the metal state. But will either of these two theories account satisfactorily for all the changes that take place from the time of exposure to the fully developed plate?

The third class are in favour of a combination of the two classes, or claim a mechanical and chemical combination, as set forth thus: The dynamic action of the wave of light, setting free the invisible particles of silver in the granules which form the emulsion on the plate, and these nuclei of metal acting as centres upon which the chemical action may take effect and proceed to the end. We know that some agents have the power of starting an action, and that others, though not able to start the act, have the power of continuing it and completing it. Another theory is that the development of a negative may be effected in one or two ways. (1) The new compound may possess an attractive force. The action of light on sensitive compounds of silver tends to cause the formation of a substance capable of attracting the metal of which it is a salt when slowly deposited from a solution. This first deposit is capable of attracting more of the metal, and in this way an image is gradually built up. This is the theory of the physical development of the wet collodion plate. If the theory of the dynamic power of light can be proved, it can also be used as a theory for the development of the dry plate. (2) The image may be the result of the reduction, more or less complete, to a more elementary state of the altered compound when treated with certain solutions, in which state it may have the same attractive power as before. This is the *rationale* of all alkaline development.

But to return to the discoveries previously mentioned, and subsequent ones following rapidly, as they will. If correct, they will of necessity displace, to a great extent, if not entirely, the vagueness that now surrounds the words "actinic force," "dynamical," and "mechanical" powers of light—words that are too frequently used to conceal our ignorance or to impress upon the minds of others an erroneous estimate of our own wonderful knowledge. If a wave of light is capable of producing sound it must have ponderance, a power to disturb an equilibrium, to disrupt and to separate, in fact, a dynamic power in many ways. By dynamic power we mean the power inherent in light to strike, to move, arrange, separate, congregate, disrupt, build up, or destroy any of the elementary substances, and in many cases their compounds upon which it acts.

The very disturbances which these waves of light are subject to in passing from and through different media must of necessity cause the generation of an immense amount of energy, and when we call to mind the immense velocity of these waves of light and their uncountable number, we cannot as yet estimate the force contained in a single ray, or the power it exercises upon any sensitive substance it impinges on. It has been repeatedly denied that light produces any separation of the elements in the formation of the invisible image, such as occurs when a visible image is formed by its action. But where is the proof for this assertion? I have as yet been unable to find it, though I have sought for it diligently, and am forced to believe it to be the *dictum* of one, repeated by others, as true. The fact is, that, surrounded by light, we have all the time been wandering in darkness. Cannot the occurrence of halation or solarization be explained if we give due credit to the dynamic power of light, as defined? By halation we mean not only the havoc it plays on a window in an interior, but also with a landscape, the foliage becoming blurred, losing its true tone value and thus becoming both inartistic and unscientific. We have been taught that the reflection of light from the outside or back of the glass or transparent support is the cause, and to prevent it we must back the plate with some opaque substance in optical contact. This explanation and teaching is true, as far as it goes, with our rapid plates and films. But why do these returning rays exercise this power and produce this effect if they have not hammering force, so to speak, upon the already disturbed molecules of silver in the film? A plate has recently been introduced in England, called the Thomas Sandell plate, that is said to be entirely free from a chance of this mishap. It is coated by two or three emulsions of different sensitiveness, and to my mind this tells the story. The first coat is decidedly less sensitive than the others; in other words, the light power is used up by the time it reaches the glass, and there is no reflection.

The objections raised against those plates, in the main, consisted of the extreme length of exposure said to be necessary, but even here "the doctors disagreed. Wuestner, of Jersey City, has very much improved the Sandell plate. His first substratum was a slow orthochromatic, and upon that spread one or two emulsions of high and highest sensitiveness; working upon the premisses that halation occurred less with dyed than plain plates. Since then he has also prepared another brand, simply with plain bromide of silver emulsions of different degrees of sensitiveness. It is said that either of these plates works rapidly and can be safely used for instantaneous exposures, and that halation has been reduced to *nil*. The reversal of the image is evidently caused by the same action of light as in halation, but that action has ceased before halation is produced.

Fog.—The veiling and the ultimate production of fog can be accounted for, if we agree that the dynamic action of light causes the molecules of silver to be so arranged and freed from their environment in the gelatine film, so that the latent image is formed and by development made visible. All goes well if there are plenty of molecules of silver for the developer to act on. But let the film be weak in especially the iodide of silver, we find at a certain point the developer stops its work. An additional quantity of the alkali is added, the work begins again, then stops. More alkali is added to force the developer. Suddenly a veil appears, followed quickly by a fog that destroys our work. You may ask me for my explanation of this destruction. The plates most subject to fog are those known as "rapid." The film is thin and very delicate. Bromide of silver is in excess, the iodide much less than normal. Whilst the light was so arranging the molecules of silver to form the latent image, it doubtless disarranged and partly separated some adjacent molecules, not needed for the image, from their weak support. The development ceased because all the silver of the image was used up, or nearly so. More alkali, the accelerator, caused the using up of the remaining molecules. An additional dose of the alkali started the pyro or reducing agent in search for more material to work upon, against the adjacent only partly-protected molecules, and then —well, you all know what happens when a lighted match touches a pile of gun cotton.

* * *

Brandon.—On Wednesday, February 15th, a lantern lecture entitled the "Eden of England; or, the Beauty Spots of the Peak and Dales of Derbyshire," was delivered in the Concert Hall. A large audience attended, and was delighted at the capital entertaintainment provided. Vocal and instrumental music was also given at intervals during the evening.

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* Read before the Photographic Society of Philadelphia.

The A B C of the Lantern.

Carriers are wooden frames to hold and retain the slides in position in the lantern stage for the purposes of exhibition. When hand-painted slides were in vogue, and before the advent of the photographic slide, it was the custom to mount each slide separately in a wooden frame, and this system is still followed by some firms who issue slides to the public on hire, the method affording greater protection to the slides. The disadvantages were the greatly increased bulk and weight. The old solid carrier was followed by one very similar in construction, consisting, in fact, of a wooden frame, generally mahogany, with a slot in the top into which the slide was dropped. This entailed a considerable amount of trouble to the operator in getting the slides to register correctly when dissolving, and when a single lantern was used, the dragging of the carrier to and fro, in and out of the slide-stage, into which it frequently fitted very tightly, was pleasant neither to audience nor operator. Subsequently, as a further improvement, the panoramic carrier was introduced, which, inasmuch as it never allowed the screen to be left bare, was, to that extent, an improvement upon its predecessors. It was simple in construction and easy to use, but required a little care in working. In construction, it consisted of an open frame work, just large enough to fit into the slide-stage, slotted from end to end to allow of the passage of the slides. To use it, the carrier was placed *in situ* in the lantern stage, and a slide inserted in the groove; upon pushing in a second slide, the first slide was brought into the centre of the carrier and projected upon the screen; when a *third* slide was inserted, the *second* slide took the place of the first, which was pushed by it to the open end of the carrier. The objection to the method now becomes apparent, for if the first slide be not removed before pushing in a fourth, it will inevitably be pushed out, and probably fall upon the floor and break. Another objection was due to the varying thicknesses of the glass slides; a thick slide sometimes stuck and refused to be pushed through, whilst the thin slides sometimes pushed by their neighbours and got firmly wedged together.

The carrier now in general use goes by various names, such as "Quick-changing," "Lightning," "Flying," etc. It consists of a wooden frame with a central opening, inside which slides a second frame, or double carrier, to hold two lantern slides, freely backwards and forwards. The great advantage of this carrier lies in the fact that the next slide is always ready, and can be flashed on to the screen almost instantaneously. The method of using it is sufficiently obvious. The outer frame is adjusted in the slide-stage until the opening is central with the condenser. The sliding inner frame is drawn towards the operator, and a slide dropped in the slot; a smart push of the inner frame will then bring the first slide into position in front of the condenser, the empty slot will now project beyond the camera on the opposite side, into which the next slide is dropped; a similar push on that side will effect the change, and bring the first slide outward. This simple form of carrier has been the subject of various modifications and improvements, and is, in fact, the one upon which most of the more pretentious patented articles are based. As in order to remove the slide it is necessary to grasp it with the fingers, it follows that the surface of the glass is liable to be finger-marked or soiled. This has been to a great extent obviated by a simple automatic lever attachment which raises the slide to be changed partly out of the slot. This carrier is manufactured by Messrs. Perken, Son, and Rayment. Another carrier of the same type and in which the same result is achieved, although the mechanism employed is different, is due to Mr. Vevers.

Carriers of this description cannot be used when a pair of lanterns are used side by side for dissolving, nor even with an ordinary biunial. In such cases a single carrier constructed on similar principles but holding only one slide is now generally employed. It is only provided with one slot, and which is filled and emptied from the same side.

A great deal of ingenuity has, of late, been expended upon the construction of carriers, by which the changing of the slides may be effected so rapidly that the eye may not be able to follow the change upon the screen. There are several very clever instruments of this type upon the market, all of which it would be impossible to refer to here. Among them may be mentioned Hughes' "Presto" carrier. Two vulcanite shutters actuated by toggle levers close over the slide at the moment of change, which is effected by simply rotating a lever which automatically closes the shutter and changes the slide at the same time. The effect upon the screen is very good.

With all the foregoing it is necessary to use slides of the standard English size, namely 3¼ by 3¼ in., and when Continental or American slides have to be shown, a special carrier must be used, unless the self-centering carrier of Mr. Beard is employed. In external appearance it is not unlike the panoramic carrier, but in point of practical utility there is no comparison between the two. In Beard's carrier any sized slide may be exhibited. American and English slides may be alternated, but each of them will be centered quite automatically. To use it the brass runner is pulled out, and a slide placed upon it, and the runner pushed in, the runner being pulled out to effect the removal of the slide already exhibited. Mr. Beard has, more recently, introduced a further modification of this slide, by which a kind of dissolving effect is produced in a single lantern. By one movement a slide is brought into position, a second movement brings another slide in front of the first, finally moving the latter and bringing the second slide into focus

(*To be continued.*) 180

Catalogues.

VEVERS' CLEARANCE LIST.

Mr. C. C. Vevers, of 12, Market Street, Briggate, Leeds, forwards us his stocktaking clearance list, which contains some very cheap lines well worth the attention of all.

HUNTER AND CO.

Messrs. Hunter and Co., having moved to East Down Works, Lewisham, S.E., send us a neat little catalogue of their specialities, which also contains some practical hints on the use of the same that will certainly be useful.

SHARP AND HITCHMOUGH,
101, Dale Street, Liverpool.

This firm sends us a neatly printed and very exhaustive catalogue containing every requisite for photographic work. They also send us samples of their washable backgrounds and opaque lantern screens, which we commend to our readers' notice.

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Messrs. Boake, Robert, and Co, the patentees and manufacturers of metabisulphite of potash, warn us of inferior foreign salts placed on the market.

Exhibitions.

SOCIETY.	ENTRIES CLOSE.	OPENS.	CLOSES.	ADDRESS OF SECRETARY.
National Photographic Exhibition, Crystal Palace ...	—	April 10	April 29	Mr. Chas. W. Hastings ; Mr. S. G. B. Wollaston.
Philadelphia (U.S.A.) Phot Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.
National Sportsman's Exhibition (Photo. Apparatus Section).	—	April 24	May 6	Royal Aquarium, Westminster.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B.

BLACKHEATH CAMERA CLUB EXHIBITION.

ALTHOUGH one of the youngest of the suburban societies, having been founded so recently as 1891, the Blackheath Camera Club has promoted an exhibition, with classes open to all comers, to which many of our best known exhibitors have responded, the result being a fairly representative collection.

The club is singularly fortunate in securing a hall the lighting of which is admirably suited to the purpose for which it is used. Our visit was made during daylight, and that illumination was so perfect as to enable every picture hung to be seen to the best advantage, a consummation not always attained in our experience of photographic exhibitions.

Upon referring to the catalogue, which was a very tasteful production, printed upon antique paper with rough edges, we found that the classfication system had been adopted, two classes being reserved to the work of members, the remainder being open. Previously medalled work was barred in the open classes, a champion class being provided.

We naturally first turned our attention to Class A (Members—prints, any subject by any process). Mr. Douglas Smith in "Warwick Castle" and "Rigg Mill" showed some careful work, the technique of which was very good. Mr. W. F. Butcher's enlargement of the "Arc du Carrousel," when compared with the small original which was also exhibited, showed well the possibilities of the process. Mr. Sydney Spencer contributed a series of Swiss landscapes, delicately printed in silver, but somewhat lacking in vigour. Mr. E. Hawkins deservedly took the silver medal for a very fine rendering of a somewhat difficult subject, No. 34, "Autumn at Frognal." This worker has certainly mastered the difficulties of bromide printing, and proved the artistic capabilities of the process. We liked his "Castle Ruins, Allington," even better than the medalled picture. The bronze medal went to Mr. Arthur W. Young for an interior, No. 48, one of a series of architectural subjects, carefully printed in silver.

In Class B (lantern slides, members), E. Hawkins also took the silver medal, the bronze going to J. T. Field, for a set of flower studies artistically treated and very delicate in tone. Among other sets worthy of mention were those of the Hon. Secretary, Mr. T. B. Earle, and T. D. Prichard.

Class C (open—any subject or process) was not a particularly strong one. There were several instances of injudicious mounting and framing, Mr. Thomas Mansell's otherwise excellent silver prints on white mounts and very light oak frames being among them. The "Views in the Zermatt Valley," of Mr. Spencer, which received honourable mention, were not in harmony with the walnut cut-out mount by which they were surrounded. Mr. P. L. Parsons showed a very realistic picture in No. 80, "Blowing up a Pontoon Bridge." Mr. Leslie Selby's "Greenwich" was a sad example of the fugacity of the process by which it was printed. For No. 92, "Gudvangen, Norway," Mr. S. J. Beckett received a bronze medal. Mr. George Lamley showed "A Sluggish River," No. 96, recently reproduced in our "Photographs of the Year," and "Evening on the Tees," a charming riverscape. No. 104, "A Surrey Brook," by Mr. Charles Moss, received honourable mention, but the incongruity of a red print wedded to a blue mount must surely have escaped the attention of the judges. Mr. T. M. Brownrigg secured the silver medal for No. 111, "A Winter Sunset on the Shore," for what was certainly a very true rendering of the subject. The other pictures of this exhibitor were flat and low in tone.

In Class D (Portraiture, Animal, and General), Mr. F. E. Butcher had, in No. 138, "Crib," three capital studies of a terrier. Mr. P. L. Parsons showed a curious picture (No. 146) of young turkeys, evidently just turned out of a basket, which formed the background of the picture. The silver medal went to S. N. Bhedwar for No. 175, "A Fair Fruit Seller," which was, perhaps, rather less theatrical in treatment than some of this exhibitor's work. Mrs. S. F. Clarke took the bronze medal for No. 152, "Sympathy."

In the class devoted to hand-camera work the exhibits of Mr. John H. Anderson (silver medal) and Mr. W. Thomas (bronze) were far and away better than those of the other competitors. The latter gentleman's charming little studies were, however, somewhat spoilt by heavy oak mounts. His "Sunset on the River" was almost "Turneresque"—if we may be pardoned the expression—in its atmospheric effect.

Class G (championship) was a particularly strong one; the pictures comprising it, being mostly of large dimensions, and hung all round the room, contributed in no small degree to the general effect. In such a competition the task of assigning premier position to a particular picture is a difficult, delicate, and almost invidious one. In this case the gold medal placed at the disposal of the judges was awarded to Mr. B. G. Wilkinson for 191, "The Peaceful Evening Hour," a picture which those who visited the last exhibition at Pall Mall will not have forgotten. The class was well supported by such men as Richard Keene, F. W. Edwards, R. Robinson, R. H. Lord, W. J. Byrne, A. R. Dresser, J. H. Gear, and other well-known workers.

Among the pictures marked "Not for competition" were some fine examples of large portraiture by Mr. Henry Wayland, of Blackheath, who, we believe, is a member of the club. One of the best pictures on the walls was contributed by Mr. Clarence James, No. 258, "Sunrise on the Marsh." We shall hope to see more work from this exhibitor in the future. We also noticed in this class several specimens of Messrs. Elliott and Son's skill in carbon printing from negatives taken upon their well-known Barnet plates.

In the apparatus section we found Messrs. Noakes represented by a show-case containing cameras, lenses, and various apparatus pertaining to the optical lantern and to photography. The fine triple lantern by which the competition slides were shown each evening was also provided by this firm, and when it is mentioned that it was manipulated by Mr. C. W. Locke, the success of this part of the exhibition needs no comment. That gentleman demonstrated, with pardonable pride, the very perfect working of the firm's "intermediate gas regulator," which, by superseding the ordinary jet tap, enables the flow of the gasses to be adjusted to a nicety. The arrangement can be fitted to any jet. Messrs. Noakes have also introduced a new mixed jet, with an improved mixing chamber. The gases, after roughly mixing in an outer chamber, enter a second, or internal chamber, through a single orifice, thus causing a most perfect admixture.

Messrs. Butcher and Sons, Blackheath, were well represented by the "Primus" cameras, of especially light construction, and a highly finished optical and enlarging lantern, which can be used for either enlarging, physical projection, or ordinary demonstration purposes. We were also shown a very ingenious air-tight and water-tight plate packing box. It is constructed of metal, and is provided with two lids, or covers, the inner one lined with felt or paper, and rendered waterproof; when the outer lid is closed, the inner lid is forced down so tightly as to hermetically seal the contents. We were also shown the "Primus" dark-slide protectors of this firm, which differ from others in that they are made of limp material, and therefore take up very little room, and moreover assist in securing immunity from fog. The same firm's "Primus" paper case for storing untoned prints, or sensitised paper under pressure, and preserving it from atmospheric influences, should prove exceedingly useful to amateurs.

Messrs. Platt and Witte also had a stall, upon which was exhibited a large collection of lanterns and accessory apparatus, together with the complete sets of metal and other fittings, the supply of which is a special feature of their business.

Upon the whole we think the Blackheath Club are to be congratulated upon the success of their show, the arrangements for which, with the exception of a little eccentricity in the numbering of the exhibits, were admirably carried out.

FILLEBROOKE ATHENÆUM (LEYTONSTONE) EXHIBITION.

The broad lines upon which the exhibition was run says much for the courage and spirit of those who have had the matter in hand. It was open to professional and amateur, and had no classes or distinction of any kind, not even a separation between members and outside contributors. A champion class, however, was made for previous medal winners. Some fourteen medals were placed at the judges' disposal, to award or withhold, according as they thought best. The judges were Messrs. F. P. Cembrano, jun., Walter L. Colls, and John A. Hodges. Four silver, three bronze, and the champion silver were awarded, the total number of exhibits being over four hundred. Of the medal-winning pictures four were landscape, two architectural, one genre, and one portraiture; and we should think little fault could be found with the awards. The judges do not appear to have been too lavish, and yet can hardly be said to have been over-exacting in their judgment. No medal falls to a member of the Athenæum Society. The winners are as follows:—Silver medals: Alfred Jeffreys, for "February Morning;" Alex. Keighley, "The Breath of Winter;" Leslie Selby, "Evening

Calm"; R. W. Robinson, "Making Friends." Bronze medals: Lionel C. Bennett, "Cress Gatherers;" F. W. Edwards, "Westminster;" W. Howells, "South Entrance, Canterbury." Champion silver, R. W. Robinson, Portrait of E. T. Watts, Esq., R.A. To the lantern-slides no award was made. We were a little curious to find what effect the "no-class" arrangement might have on photographers generally. The average merit of the pictures struck us as decidedly high, and there was practically nothing which could be called quite bad. We do not know what steps the executive may have taken to make the character of the exhibition known to individual photographers, but somehow we fancy there might be a good many more who would have been glad to support the thing by sending in had the scheme been clearly submitted to them. As it was there was a distinctly good and eminently encouraging exhibition, and without making invidious comparisons, we think many an older society might take example from the exhibition of one of the less known suburban societies.

One disadvantage in holding an exhibition at the present season is that there is sure to be a great deal of work sent in which has already been shown elsewhere, and whilst as far as the local public this is a matter of no consequence, it is apt to take the enthusiasm out of the more initiated visitor when he finds himself confronted at every step with pictures with which he is already acquainted. We do not remember seeing so much previously exhibited work as at the exhibition under review. Some new things there were well worth notice, and it is of these more particularly that we shall speak.

Mr. J. H. Avery has a very nice little picture of pollard willows and river bank entitled "Early Morn, Norfolk Marshes," printed on a very rough surface paper and of red-brown colour; it has nice feeling. It is in very low tone, too low we think even for early morning, unless this period be taken to include quite the small hours, and there is a regretable mass of heavy tree foliage coming up to the upper left corner of the picture. Both in this and in "Sewardstone Marshes," however, Mr. Avery seems to be quite in the right way of doing real good work. In No. 7, Mr. W. H. Banks has a nicely printed hillside landscape, very soft and grey, but hardly suggestive of the title which it bears, "Now Came Still Evening on." This is the best of his series; of the others we should select "Marshland Winter" as superior in treatment to the others remaining. "Hayburn Wyke," by Mr. W. L. Barker, is a technically excellent photograph and a subject out of which we should imagine the artist might make much. Mr. Barker does not appear to have made the most of his opportunity; nor, indeed, if a picture was his intention, is "Ilford Bridge" or "Eynsford" well chosen. Some capital little seascapes, most of which, if we mistake not, we have seen before, are shown by Mr. Henry W. Bennett; of the series of eight we prefer No. 35, "Evening on the Silent Sea," the subject being much more pictorially treated. Some of the others are too purely of the nature of "snap-shots," without much design or preconsideration. Next we have three delightfully refreshing pictures by Mr. Lionel C. Bennett, "Rubbish Burners," shown at Pall Mall last year, "September," and "Cress Gatherers," the latter a very worthy recipient of a medal. We should have thought it might have been a silver one. In each of these pictures Mr. Lionel C. Bennett shows fine appreciation of pictorial possibilities, which would only have occurred to the observant and properly sympathetic worker. The solitary figure in "Cress Gatherer" appears to us to be just what a figure in landscape should be, excellently placed and the whole treated with good taste and feeling. Three of Mr. S. N. Bhedwar's well-known pictures, "The Pet Peacock," "Home from the Well," and "In Love with her own Wondrous Song," need no description here from us.

Mr. C. H. Brightman's effective sky and illuminated sea in No. 52, "Evening," are really very wonderful, but, of course, much too deeply printed to do anything except astonish. With care and judgment, we should think Mr. Brightman might print the subject so as to be a quite acceptable picture. In Nos. 60, 61, and 62 we have the work of quite a new exhibitor, Mr. G. H. Cricks, and all three show evidence of great care, good taste, and promise much for the future. "A Hazy Morn" and "Sunrise" are along-shore subjects, in which mud and water are well utilised in the foreground, and there is nice suggestion of the hazy light of morning amongst the vessels that lie at anchor in the middle distance. The skies, too, are very suitable and in fairly correct value. "Sunrise" is, we think, the better of the two, though probably, printed in some other medium, "Hazy Morn" might be done better with. Mr. A. R. Dresser has not made a happy selection in the four pictures he sends to the open classes. They have all appeared in public many times before, and don't improve upon acquaintance. This exhibitor is better in the two subjects entered in the champion class.

Mr. F. W. Edwards's characteristic architectural photographs are conspicuous here, and "Westminster Abbey" takes a medal. Some six or seven frames from Mr. H. E. Farmer have, like many of their neighbours, been reviewed by us before, and can hardly claim further notice here. We recognise Mr. B. Gay Wilkinson's Pall Mall exhibits, "Estuary of the Blythe," and "Sunset Calm," which are not for competition. In various parts of the room, too late to be included in the catalogue, we notice some exceedingly clever and effective studies of heads and figures by the late Mr. W. N. Malby. For striking illumination and wonderful selection and arrangement of models these clever photographs would command attention anywhere. Mr. A. J. Golding has three or four seascapes much in the manner of his "Going Out to Sea," which brought him well-merited notoriety last year. We should almost have expected to have seen more from this promising worker. As far as exhibitions go, there is no lack of opportunity. Mr. A. W. Gottlieb sends, amongst other things, his "Bunch of Grapes," the rendering of the texture of which awakened much favourable comment at Pall Mall. A pretty little landscape, well chosen and printed, is "An Essex Lane," by Mr. G. Hawkins. "A February Morning" is the only contribution by Mr. A. Jeffreys, and it receives a silver medal. So far as recollection serves us, Mr. Jeffreys is a new exhibitor, and we congratulate him upon his well-earned success, and his very poetic little landscape so full of atmosphere, tender drawing, and tone. The printing is wonderfully delicate, and with its quiet sky is beautifully suggestive and truthful to nature.

A well-known exhibitor, Mr. Alex. Keighley, makes a strong contribution, and is awarded a medal for a narrow vertical picture, "The Breath of Winter;" this we do not remember to have seen before, but all his others are old acquaintances. Mr. C. H. Oakden sends a characteristic series of architectural subjects, and we should think must have run Messrs. F. W. Edwards and W. Howells very close for an award; we do not understand how he missed where they hit. There are two or three prints which having been sent late by post by Mr. W. E. Platt, of Brooklyn, U.S.A., suffer by being pinned on to the wall without mounting of any kind, yet in "Listening to the Vesper Bells," the girl most picturesquely attired, seated on a wheelbarrow in the midst of a cabbage field, is a model such as one is rarely fortunate enough to meet with. The easy and graceful pose of the figure, and expression of face was just as sublime a little piece of drawing as one could wish for. The rest of the subject, however, and its companion prints would seem to make it doubtful how far the photographer was appreciative of his opportunity, particularly when in one instance we find a circular patch of white paint placed on the top of a cloud, intended to represent the moon! Nor is this the only instance of Chinese white being superadded in a manner astonishing to behold. Mr. R. W. Robinson contributes four well-known pictures, and receives a medal for "Making Friends," shown last year at the Camera Club Exhibition, but as most of our readers will have either seen or read of these admirable and essentially pictorial works before, we will not pause to remark upon them here.

Mr. Leslie Selby's "Evening Calm" (silver medal) is really an admirable work, so very much that is poetic being made out of what to many would have appeared an unpromising subject. Messrs. C. S. Roe, J. Kidson Taylor, J. F. Stevens, J. W. Spurgeon, and others are also well represented.

In the champion class we of course meet old friends and well-known names, and we think it will be unnecessary to particularise. The champion medal is well placed on Mr. R. W. Robinson's grand portrait of "G. F. Watts, Esq., R.A."

The non competitive go a long way to make the exhibition room look well furnished. The exhibitors are Messrs. H. P. Robinson, B. Gay Wilkinson, A. Keighley, A. Horsley Hinton, C. S. Roe, H. T. Malby, Bourne, Sheppard, etc.

In the evening a large number of visitors were present, attracted no doubt by the announcement of a lantern lecture, entitled "Through North Devon with a Camera," as well as by the pictures, for the inspection of which the lighting arrangements of the Athenæum Hall are particularly suitable.

At eight o'clock the chairman, Mr. Horsley Hinton, introduced the lecturer, Mr. John A. Hodges, a well-known writer on photographic subjects, and from what he (the chairman) knew of Mr. Hodges' slides, he was sure there was a treat for all present. For the information of those who knew nothing of the mysteries of photography and its application, he explained how the instrument employed for projecting the views on to the screen was practically identical with the familiar magic-lantern, the slides, however, being actual photographs on glass, so that there was no escaping from absolute accuracy of the views shown. The chairman further pointed out that Mr. Hodges' slides might be useful to those in the audience who were themselves takers of photographs and makers of slides.

Mr. Hodges was well received and most attentively listened to. He took his readers for a rapid tour through the delightful border country of Somersetshire and Devonshire, and, continuing westward, drew rein at Clovelly. The route and the various points of interest were well described, and the occasional reference to local tradition of wayside story induced laughter and applause.

The lantern slides were of very excellent character, and the enthusiastic reception which they met indicated how well they were appreciated.

At the conclusion of the lecture Mr. Hutchinson proposed a vote of thanks to the lecturer and the chairman, which was appropriately seconded by Rev. J. Bradford.

On Thursday evening the lantern slides sent in for competition were exhibited.

Both on Wednesday afternoon and on Thursday visitors were entertained with selections of music.

Societies' Notes.

Liverpool Camera Club.—The second annual meeting was held on Wednesday, the 22nd ult., when the following officers were elected for the ensuing year:—President, J. Hawkins; Vice-Presidents, Messrs. T. Edwards and A. C. Yub; Hon. Treasurer, W. Tansley; Librarian, C. H. Freeman; Council, Messrs. W. A. Brown, W. Haywood, J. H. Jones, J. Pride, Dr. Webb, J. Smith, R. C. Robbins, C. J. Whitehead, J. Penn; Hon. Sec., W. A. Stuart.

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The Harringay Photographic Society are preparing a big lantern night, and are hiring a large hall specially. All are invited. Admission free by ticket, to be obtained of any dealer.

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On 28th ult. an adjourned meeting of photographers was held in Mr. Platt's studio, Coatbridge, when a draft constitution and rules for the proposed photographic society was submitted and adjusted. The society was duly constituted under the name of "The Monklands Photographic Society," and office-bearers were elected, the Secretary being Mr. William Dixon Gray, 16, Bank Street, Airdrie. It would be well that any photographers in the district who approve or wish to become members of the Society, which has for its object the promotion of photography in all its branches, should communicate with the Secretary, who will gladly furnish any information in regard to it.

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In the list of awards of the Calcutta Exhibition the omission of a silver medal to Mr. E. G. Lee for twelve lantern slides was accidentally made.

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It is proposed to form a camera club for Battersea. Mr. S. G. Vaughan, of Karachi Klnl, St. John's Hill, Battersea, will be glad to hear from would-be members.

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Redruth Photographic Club.—This club held its first outing last week, and begins the year with Mr. T. C. Peter as President, and Mr. Ernest Barenger, Illogan Highway, as Hon. Secretary.

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We are informed that Messrs. R. W. Thomas and Co. have just made arrangements with Mr. Fry to demonstrate their new multiple-coated plates which they call, after the inventor, the "Sandell" plate. Secretaries of photographic societies who desire to have the advantages of the new plate demonstrated before their members should communicate with Messrs. R. W. Thomas and Co., or direct to Mr. S. Herbert Fry, at Homeside, Kingston-on-Thames.

Societies' Meetings.

Bath.—The annual meeting was held on the 22nd ult., Mr. Austin J. King in the chair. After the minutes were confirmed, the President (Mr. Austin J. King) was, on the proposition of Mr. Pumphrey, ably seconded by Canon Williams, re-elected by acclamation. The Hon. Secretary read the report and balance-sheet, which dealt at length with the following points: The desirability of a larger membership and partial revision of subscription; a scheme for collecting for public use a series of photographs of what has or is taking place in the district; a plan by which, in conjunction with the Technical School, the principles underlying the art of photography may be imparted to students; the necessity of members taking an active part in the prospective work undertaken by the society; the success attending the photographic exhibition in May, in conjunction with the floral fete and band committee. The treasurer's account showed £6 5s. 11d. in hand after defraying the expenses of the year. Messrs. P. Braham and A. F. Perren were elected Vice-Presidents; Messrs. E. J. Appleby, E. Lambert, Dr. Norman, Geo. F. Powell, Rev. E. A. Purvis, Canon Williams, and D. Williams Committee; W. Middleton Ashman, 12a, Old Bond Street, Hon. Sec. and Treasurer.

Birmingham.—A meeting was held on 28th ult. The Chairman, Mr. Goode, introduced the lecturer, Mr. Geo. Bankart, of Leicester an honorary member of the society, to the meeting. Mr. Bankart had brought with him 200 slides, principally of Derbyshire, the Lakes, Scotland, and Ireland, and the large audience received them with enthusiasm. All photographers present would certainly add to their knowledge of the principles and practice of composition from the masterly collection of views shown, perhaps more especially of the treatment of the foreground. The lecturer's interesting remarks on the history of places shown added greatly to their enjoyment. All agreed that there had not been one view too many on the screen, and look forward to a further instalment at no very distant date.

Eastbourne.—At a meeting on the 1st inst. Mr. A. M. Smith, from the Eastman Photographic Materials Co., attended and gave an interesting description of the various manufactures of the company. The Kodak came in for well-merited notice. The lecturer showed the manipulation of "Solio" paper, which the firm are making a very big line of, and the ease and beauty of tone were justly admired. Some of the prints exhibited were exactly like platinum-toned prints, but these were obtained by means of squeegeeing down on *very* fine ground-glass.

East London.—The annual general meeting took place on 28th ult., Mr. Pasco, President, in the chair. The following gentlemen were elected as officers for the ensuing year:—President, Mr. Pasco; Vice-Presidents, Messrs. Wilkinson, C. Tyler, and E. Stone; Treasurer, Mr. Cook; Hon. Sec., Mr. W. R. Gould. The retiring Hon. Sec., Mr. Wilkinson, read the annual report and balance sheet, which showed that the Society had made great progress during the past year. He was accorded a hearty vote of thanks for the able manner in which he had carried out the arduous duties of Hon. Sec. for the last two years. The address of the present Hon. Sec. is 61, Gibraltar Walk, Bethnal Green.

Glasgow.—On 17th ult. a popular meeting was held, Mr. Wm. Lang, jun., F.C.S., President, in the chair. To a large and appreciative audience, Mr. W. Lamond Howie, F.C.S., delivered his well-known lecture, "To Ober-Ammergau and Back in 1890." On 2nd inst. Mr. Wm. Lang, jun., F.C.S., President, in the chair, Mr. J. Craig Annan gave a practical demonstration of carbon printing, and developed several prints on paper, glass, and opal. A new printing-out lantern plate was shown to members, and a series of new standard lens fittings was exhibited, and explained by Mr. W. S. Hobson, of Messrs. Taylor, Taylor, and Hobson, Leicester.

Hackney.—Ordinary meeting was held on 27th inst., Mr. F. Houghton in the chair. Mr. Hudson handed up a home-made shutter. The working was, however, too stiff in its action. Mr. A. Barker presented slides to the society for lending out. Mr. Grant showed some print-out opals. A discussion ensued on the desirability of the society being represented at the forthcoming Crystal Palace Exhibition. The matter was referred to the council to be thrashed out. Mr. Vining asked, "What is a simple way of obliterating portions of a negative so as to omit same in printing and without leaving a hard line?" Mr. Grant said that Mr. H. P. Robinson described the method in his book. Mr. Avent asked, what had the society done about the proposed new lantern lenses. Through the kindness of one or two members it was decided to purchase two, made by Messrs. Swift. The *Photography* prize slides were then shown, after which slides by Messrs. A. Barker, S. J. Beckett, Dean, Grant, Hull, Moore, Harvey, Roofe, Taverner, and G. W. Wilson, of Aberdeen. The Hon. Secretary announced that Mr. A. Brooker, of Hastings, would give a lecture on "Winchelsea and Rye" next meeting.

Harringay.—On 2nd inst. Mr. L. E. Morgan gave a demonstration with Amidol. Its particular advantages are too well known to need any particulars of demonstration.

Kensington and Bayswater.—A meeting was held on 6th inst. Lecture on "Some of the Chemicals used in Photography," by Charles W. Brumwell; illustrated with experiments. Mr. Damon presided.

Leeds.—Meeting was held on the 2nd inst., Mr. John H. Walker, President, in the chair. Mr. W. D. Welford read a paper on "Practical Hand-Camera Work." Mr. Welford is so well known in the photographic world, and being recognised as a specialist in hand-camera work, his ability to interest and instruct induced a large gathering. While he agreed with most workers that the hand-camera should not take the place of the stand camera for really fine work, yet it had its place and department which the stand camera could not attempt with the same success, such as street scenes, character and life on the sands, market place, etc. He got about seventy slides passed through the lantern, illustrative of these, which were pronounced very excellent.

Leigh.—Ordinary meeting held 2nd inst., Mr. T. L. Syms presided over a good attendance. The second of a series of genre competitions was held. Mr. Syms gained first prize with "The Artist;" Mr.

R. Leigh second with "Bobbin Winding;" Mr. Isherwood third, "Chips." Next study for competition to be called "Rest." The next meeting, 16th inst., will be a lantern evening for the selection of slides for the Literary Society's annual exhibition and the competition.

Leeds (Y.M.C.A.).—A very interesting evening was spent on Feb. 24th with Mr. J. A. Noble, who gave illustrations of micro-photography. He put specimens of botanical objects under the glass, which were studied with much enjoyment by all present.

Liverpool (A. P. A).—On 2nd inst. Mr. F. Anyon gave a practical demonstration on "Developing, Reducing, and Intensifying," which proved very instructive to the large number of members present. Mr. Anyon strongly recommended pyro and ammonia as the best developer.

Margate.—The monthly meeting was held on 27th inst., when the Hon. Secretary, Mr. Harvey, gave a practical demonstration of the value of Cresco-Fyma for the purpose of enlargement of negatives. By means of this powerful fluid, films were made to leave their original supports, and (being left to float in a dish of water for about twenty minutes) to attach themselves to a larger glass, thus forming a new negative fully one-third larger than the one operated on. Time would not suffice to demonstrate the fact, but it was plainly shown that by a repetition of enlargements a quarter-plate negative could be increased in size as to be made to print a photograph measuring 12 by 10 without distortion or want of detail.

Midland.—On 3rd inst. a special meeting was held to hear a lecture by the President (Dr. Hall Edwards) on the "Marvels of Photography." The chair was taken by Dr. Leech, J.P. The lecturer, after having described in a popular manner some of the mysteries of the photographic art, dilated at some length upon its extreme usefulness in aiding the progress of other sciences, and showed many beautiful lantern slides illustrative of its applications to astronomy, chemistry, the microscope, botany, natural history, medicine, etc.

North Middlesex.—The first of a series of elementary technical classes was held on the 1st inst. Mr. J. McIntosh taking charge, explained the different sorts of lenses, their uses, and how to test them; the stops, their uses, and their relation one to another as regards exposure; the camera, swing-back, rising front, showing, explaining various tests concerning same he also touched upon plates, and made a point of the advantages gained by backing, some of which he distributed for trial. The classes are given expressly to help beginners, free of charge. Any gentleman wishing to attend should make application to the Hon. Sec., Mr. G. Gosling, 13, Lausanne Road, Hornsey. An outing has been arranged to Hampstead for Saturday, the 11th inst., which will be attended by several members of the Society to give practical instruction in the use of the camera in the field, and will be followed on Wednesday, the 15th inst., by an evening for developing the plates exposed.

Oxford University.—A meeting was held on the 27th ult. It was resolved to hold a club competition, and the standing of life members was altered from one to two annual subscriptions. The Hon. President, Mr. A. McMullen, Balliol, then exhibited his slides taken in Ghent, Bruges, Brussels, Ostend, which were exceedingly interesting.

P.S.G.B.—On 28th ult., Mr. Pringle, Vice-President, in the chair. Mr. Chapman Jones announced that the Council had re-appointed him Hon. Secretary, Mr. E. Clifton Hon. Librarian, and Messrs. J. Cadett and H. A. Lawrance members of Council. Mr. T. P. Watson exhibited and described the "Genie" American hand-camera. The magazine, which was extremely compact, held twenty-four films; the complete camera and films for ¼-plate weighed five pounds. Mr. Leon Warnerke exhibited a paraffin stove which had been invented by a Lapp, and which sold in Russia for about 15s. Mr. Chapman Jones exhibited a negative developed with an amidol developer made decidedly acid with sulphurous acid. He remarked that he could not see the slightest difference in the results with a developer containing commercial slightly alkaline sulphite and a developer acidified with sulphurous acid and which remained acid after development. Col. R. W. Stewart, R.E., read a paper on "Panoramic Photography," and exhibited his own "Panoram" for that purpose. The Pantoscopic Camera was also on view, and Sutton's panoramic water lens. Mr. J. A. Harrison remarked that the "Panoram" was constructed upon much the same principles as the Pantoscopic Camera, but at the time, however, when the latter was constructed, films were not available. Mr. W. E. Debenham contended that Col. Stewart's proposition that panoramic perspective was in itself truer than plane perspective was a mistaken proposition. Panoramic perspective, he said, when the picture was seen as a flat plane was essentially false. Mercator's projection had been quoted, but any one who looked at Mercator's projection would be struck with the extraordinary exaggeration of size between Greenland and the tropical countries. Mr. J. Traill Taylor, who had taken the chair after Mr. Pringle had vacated it, said that a picture subtending an angle of 80 deg. on the base line with a wide-angle lens is very false in perspective. By photographing a row of spherical balls the centre ones would appear round, but as they approached to the margin they would be seen to expand laterally. They should be examined from a point of view equal to the focus of the lens. In a cylindrical picture the eye should be placed in a similar way, and the picture looked at close, and then it would all be perfectly truthful. Both perspectives were wrong unless the pictures were looked at properly.

Tunbridge Wells.—A meeting was held on the 2nd inst., Mr. W. E. Brampton in the chair. This being a lantern evening there was a large attendance. Members having invited their friends, including the Mayor (Mr. H. Pink), who was present to view the slides; which were to be thrown on the screen, the lecture-room of the Mechanics' Institute had been engaged to accommodate those expected. The first to be shown were the Peak and Dale slides these were very much admired, and many present were reminded of happy hours spent in the district, after which "Photography" 1892 prize slides were shown; a good many of the workers' names and some of the pictures were recognised as having been exhibited at the exhibitions held here, those of Mrs. F. S. Clarke, amongst others, eliciting much applause. Mr. Cornell manipulated the lantern in his usual masterly style, and concluded with his new arrangement of the kaleidoscope. The Hon. Secretary described the slides.

West London.—On the 28th ult. Messrs. Stein and Varden read their joint paper on "Round West London with Cycle and Camera." After detailing how a few members of the society had banded themselves together into a cycling division, the authors dwelt on the advantages of combining cycling with photography. The cyclist did not feel the weight of his camera, for it was carried on his machine. The paper was profusely illustrated by the lantern, the slides being from photographs by the joint authors, commencing with a short series of pictures illustrative of the evolution of the modern cycle. The full text will appear in our pages.

Woolwich.—At the meeting held February 26th Mr. F. W. Edwards demonstrated the methods of daylight enlarging. He was decidedly in favour of making enlarged negatives and printing therefrom by contact on platinum paper, rather than enlarging direct on bromide. An interesting discussion followed. Next meeting, Monday, March 13th.

York.—On 1st inst. the Hon. Secretary gave an interesting demonstration of the Cresco Fylma enlarging process. After explaining the uses other than enlarging to which the solution can be put, such as making reversed negatives for carbon or collotype work and transference of the films of cracked negatives to fresh glasses, he successfully enlarged a quarter-plate transparency to about double size and floated it on to opal, the simplicity of the process exciting favourable comment. He also gave a brief account of the special features of Rodinal as a developer, and developed a lantern slide and bromide print, the results being very satisfactory. A number of pictures enlarged by Cresco Fylma, and bromide prints developed with Rodinal were shown, and were much admired.

* * *

Fowke and Son, of Stafford, have opened a dark-room for the use of amateurs, and have laid in a stock of photographic goods.

An Enterprising Company.—It is only within the past twelve months that the Imperial Dry Plate Company, Limited, placed their dry plates on the market. So rapidly popular have they become, both with the amateur and professional photographer at home and abroad, that up to the present time the Company have been continually increasing their manufacturing premises and adopting every labour-saving machine suitable to their business. These alterations and additions have been pressed forward with the view of meeting the already enormous demand for the coming season, with the result that their factory being complete they can execute the largest home or export order without delay. The success of the undertaking has been undoubtedly due to the very high standard of quality they have insisted on from the very first, and they have now such confidence in their plates that for the present month they offer to send samples to *anyone* on receipt of the bare cost of postage, believing that Imperial plates once tried will always be used.

The Benevolent.—Meeting of committee was held in the rooms of the Photographic Society of Great Britain on March 3rd, Mr. A. Mackie in the chair. There were four applications for assistance by loans or grants, all of which, after careful consideration, were granted. Messrs. A. Mackie and R. Child Bayley were appointed to wait upon the husband of one of the applicants with a view to inducing him to go into a hospital, and so give his wife an opportunity of resuming her work as spotter and mounter, and so recovering from their present extreme poverty. One of the loans was to enable an operator who had been out of work some time, to pay his arrears of debt at his lodgings, and to take a situation which he had already obtained. In another, to enable a process worker who had been out of work for months, and who was penniless, to obtain camera and other apparatus whereby he could undertake work.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer Questions by post.

QUERIES.

5959. **Hydroquinone.**—Will any of your readers oblige by giving me formulæ of hydroquinone developer (one solution)? I always use Ilford plates.—SANDOWN.

5960. **Blocking-out Background.**—Can any of your readers inform me of the method of blocking out the whole of the background of a portrait negative by reduction so that the part reduced is quite transparent and the background in the print is quite black?—R. G. E.

5961. **Loan of Negatives.**—Can any brother amateur loan me quarter-plate negatives of the following:—(1) Symonds Yat Station and the valley in front, including the three counties of Hereford, Gloucester, and Monmouth; (2) The Seven Sisters, near Symonds Yat; (3) The Buckstone, near Monmouth; (4) Carisbrooke Castle, including gateway at entrance? Half-plate negatives will do. I will pay carriage both ways, and take great care of them. References if necessary.—P.

5962. **Toning Solio Prints.**—Having toned a few prints on Solio paper with the toning bath recommended for that paper and then put them in a fixing bath made up of five to twenty, the prints turn a bright red, and when the prints had been in the bath for fifteen minutes they were very light, almost no good and of no better colour. How is this? I should like to know the cause. If any of your readers know, they will oblige.—A. B. C.

5963. **Photography at Kew.**—Where can I get a permit to take photographs in Kew Gardens, and for how long is it serviceable, and between what hours?—RALPH.

5964. **Acetate Toning Bath.**—Wanted, particulars for a good acetate toning bath.—T. B.

5965. **Intensifier.**—Can any of your readers give me an intensifier which is less dangerous to handle than the bichloride of mercury?—SLIGO.

5966. **Blacking Metal Slides.**—The sheets of metal in my dark slides have got scratched in places, how can I reblack this?—K. DURHAM

5967. **Toning.**—Is it right to filter the toning solution before using it?—C. B.

5968 **Under-exposure.**—With reference to "Codbeck's" answer to my query No. 5927, I should like to know what I had best do when the plate is either over or under-exposed when using the developer he gives.—M. Y. S.

5969. **Burnisher.**—Will any reader of the AMATEUR PHOTOGRAPHER give me full particulars of glazing machine for burnishing P.O.P., as I am thinking of making one and should be glad for a little help. Ten or 12 in. rollers. I should be obliged to anyone.—BURNISHER.

5970. **Uranium Intensification.**—Will some reader tell how to remove uranium intensifier from negatives. Have tried prolonged soaking in water.—YCREP.

5971. **Llandudno.**—I shall be going to Llandudno for four days at Easter, can any brother amateur give me full particulars of the photographic work to be done there, as I am an utter stranger to the place?—E. C. H.

5972. **Mounting Chloride Prints.**—Which is the best way to mount gelatino-chloride prints on to glass for a permanency, like those bought in shops in oval brass frames, and also where can I obtain the same?—F. GRAY.

5973. **Loan of Negatives.**—Will some kind reader of AMATEUR PHOTOGRAPHER loan me a few quarter-plate negatives for making lantern slides from. I am not very particular as to what the subjects are if they are of interest. I will pay the carriage, etc.—F. GRAY.

5974. **Studio.**—Could any reader inform me how to build studio, or would it be cheapest to buy portable one? Could build it any way to face north or south.—TRIEOD.

5975. **Broken Negative.**—Is it possible to make a negative from a transparency as perfect in every respect as the original negative (now broken) from which the transparency was taken? If so, should it be done by contact or in the camera, and what kind of plate is recommended?—IGNORAMU

ANSWERS.

5948. **Paraffin Carbons.**—In reply to this query, I believe these carbons can be obtained at 13, Greek Street, Soho.—MONTROSE.

5950. **Stains.**—All pyro solutions more or less have a tendency to stain. There is only one effectual remedy, that is, to give up pyro and use some other developer. However, you will find by soaking the negative in an alum bath of moderate strength for three minutes, both before and after fixing, helps materially in clearing away stains. You might try this:—Citric acid, 1 oz., alum, 2 oz., water, 10 oz.; or hydrochloric acid, 1 oz., and sat. sol. of alum, 5 oz. Hydroquinone gives splendid crisp printing negatives, but pyro certainly boasts of an advantage over it in portraiture. The latter yields soft half tone to the features, whilst hydroquinone, unless very carefully used, makes them harsh and too white.—ZEBRA.

5950. **Stains.**—As "Soce" does not describe the stains, it is difficult to guess what they are. It might be pyro stains owing to long immersion in the developer. It can be cleared by the following solution:—

Alum	1 oz.
Citric acid	2 ,,
Water	10 ,,

If the negatives have been printed from, it might be silver stain. Try putting the negative into hypo. If this fails there is no other remedy.—CODBECK.

5951. **Lens.**—The camera will have to be extended to twice its usual length. The stops *f*/8, *f*/11, and *f*/16, etc., will become *f*/16, *f*/22, and *f*/32, thus requiring four times the usual exposure.—CODBECK.

5952. **Ferrous Oxalate Developer.**—Ferrous oxalate is a tiresome and uncertain formula. It does not give the latitude in range of exposure. Unless you happen to give the correct time, or near so, the image is always difficult to get out, and wants a lot of coaxing. Add more iron (ferrous sulphate), not much, or a brown precipitate will appear, and your developer be useless. If the plate be greatly under-exposed, as a last resort to produce detail try two or three drops of a clear solution of hypo, such as is used for fixing, put to the ferrous oxalate.—ZEBRA.

5952. **Ferraus Oxalate Developer** can be quickened to a certain degree by adding a small solution of hyposulphite of soda.—CODBECK.

5953. **Toning Chloride Papers.**—For Ilford P.O.P. use this:—

Sulphocyanide ammonium	15 gr.
Common salt	80 ,,
Gold	2 ,,
Water	10 oz.

For Solio, use:—

Borax	40 gr.
Gold	2 ,,
Water	10 oz.

—CODBECK.

5953. **Toning Chloride Papers.**—Two gold baths for either Solio or Ilford P.O.P. are:—

Sulphocyanide of ammonium	30 gr.
Water	16 oz.
Chloride of gold	1½ gr.

Combined toning and fixing, for warm tones, stock solution No. 1:—

Hypo	20 oz.
Potash alum	5 ,,
Sodium sulphate	14 ,,
Water	160 ,,

First dissolve hypo and alum in the water, then add sodium sulphate, allow to stand three hours. No. 2 stock solution:—

Gold chloride	15 gr.
Acetate of lead	64 ,,
Water	8 oz.

Note.—A heavy precipitate is formed in No. 2 solution, which redissolves on being put to No. 1. For use take of No. 1, 8 oz., and No. 2, 1 oz.; well shake No. 2 before adding to No. 1.—ZEBRA.

5954. **Metal Dishes.**—I should advise you to use porcelain dishes. Nothing equals them for cleanliness.—ZEBRA.

5954. **Metal Dishes.**—The chances of breaking the negatives while developing are far greater than with the ordinary dishes.—CODBECK.

5955. **Magnesium Light.**—Try fifteen inches of ribbon. I don't think you will find it any too much. ZEBRA.

5956. **Colouring Slides.**—"A Manual on Painting on Glass" is published by J. Barnard and Son, 19, Berners Street, London, W., price one shilling, who also sell specially-prepared painting colours for slides. —CODBECK.

5957. **Copying Prints, etc.**—A rectilinear lens will copy prints. Use isochromatic plates for lithographic prints. The exposure will depend upon the speed of the plate, the stop used, and whether you copy indoors or outdoors.—CODBECK.

5957. **Copying Prints, etc.**—"Regina" will find he will be able to copy almost anything with a rectilinear lens. The exposure required varies, but is generally between 1½ and 2½ minutes in a good light and using an ordinary plate.—MONTROSE.

QUERIES UNANSWERED.

Mar. 3.—Nos. 5949, 5958.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week This we much regret.*—ED. AM. PHOT.

J. A. FORRET.—Many thanks for the print. We hope to issue album next week. We like the tea party very well, but it gives one the idea of there not being much room for anybody else; it is too cramped up in the corner, and the corner line down the back of print is offensive. It could be much improved by retouching the hands, which now look like niggers'.

W. WATERS.—(1) Pin your litho perfectly flat to a board or stout cardboard, hang it up at a convenient height in an evenly lighted place or out of doors if possible. Set up your camera and focus in the usual way, using the largest stop which will give you sharp definition over the whole screen, then expose, giving about 40 sec. in bright diffused light to slow plate; develop in the ordinary way. (2) It is impossible without using caustic soda to make up a stock accelerator as strong as liq. ammonia, but if you dissolve 1 oz. of pure carbonate of soda in 10 oz. of water you will have a 10 per cent. sol. of soda which may be used instead of the ammonia, rather more being required for each plate; thus, 1 drachm may be used to commence with and another drachm added later on if required.

W. H.—We will do the best we can for you in slides. We will see about certificate. What date do you want slides?

BEGINNER.—We should say that the marks were caused by uneven drying of the emulsion, but we should like to see negatives first.

H. S. G.—(1) Make a saturated solution of sodium sulphite, and add when the image hangs fire. (2) A portrait lens may be used if stopped down well. (3) The exposure may vary from 30—300 seconds with a rapid plate. (4) A portrait lens or else one of Dollond's Monocle lenses. (5) Yes, amidol may be used both for slides and bromide paper. You will find several notes in the last month on these subjects.

R. P. SWINTON.—Either Tyler's or Adams'. You cannot expect to get a 16 ft. screen cheap and good, Sharp and Hitchmough, 101, Dale Street, Liverpool, have a very good one at 73s. 6d.

J. B.—(1) You want one of Griffins' tables of strengths of ammonia to use with his instrument; we know no other way. (2) We will write later on. (3) Using the developer warm was the cause of your green fog. Try and print from it first, then if it will not print well, soak the plate in water and then in

Ferric chloride	50 gr.
Potassium bromide	30 ,,
Water	4 oz.

till the fog disappears, wash well, and redevelop with well-restrained ferrous-oxalate, refix and wash. (4) You might try a sulphocyanide gold bath or old combined toning and fixing bath, but such stains are very difficult to move. (5) If an ordinary fixing bath be used there is no harm in leaving the plates in a long time. (6) Provided running water is used or the water be frequently changed, there is no harm in leaving them in water between developing and fixing.

G. H. LEES.—The only work we know of is "A Guide to Crystoleum Painting," price 1s., published by the Crystoleum Co., 76, High Holborn, E.C.

R. L COCKS.—There ought to be no difficulty in getting the bluish-red tones you want with the simple sulphocyanide gold bath recommended for P.O.P. Probably the sepia tones are obtained with the old uranium and gold bath. Will you try these?

A NOVICE.—It certainly does happen many times, that by using a colour screen it is possible to obtain clouds on the original negative, but often to preserve these one has to spoil the landscape in developing. It is far preferable to use a separate plate for the clouds.

MAURICE EGERTON.—You can use a portrait lens for instantaneous work, but it will possess comparatively no depth of focus and but little covering power.

ISTAHHR.—The Lothian Universal plummet, sold by A. H. Baird, 15, Lothian Street, Edinburgh, price 2s., will answer your requirements.

J. KIDD, JUN. (Spain).—(1) We do not like the lens at all, it is not satisfactory, and we prefer A.

GEO. T USHER.—You would find full information as to permits and where to obtain them, in our '92 Annual, p. 223.

M. E. M.—Wash your prints thoroughly and give them five minutes' soaking in—

Chrome alum	10 gr.
Distilled water	1 oz.

to which sufficient ammonia has been added to cause a permanent slight precipitate; filter this, and wash prints well after its use. Probably touching the prints with dirty or greasy fingers has something to do with your trouble.

Lost in the Country.—(1) No, very few lenses will do that. (2) For outdoor work a landscape lens is the best. (3) Bleaching with mercuric chloride, washing well and reblacking with ferrous oxalate. (4) It is always as well to stick to the developer recommended by the makers at first; when you get well up in practical work you can use any formula.

H. W.—Can you read German? If so, the best and most complete work is Eder's Handbuch der Photographie. In English, Abney's "Photography with Emulsions" and "Instruction in Photography." We have no English work at all to compare with Eder's.

Thornhill.—(1) The formula is right, but you should have bleached the image with mercuric chloride first. (2) Any negatives can be intensified. (3) The greenish tint is "green fog" due to forcing with alkali in developer. (4) You ask, how long on an average would a negative require to be in the bath? Do you mean the developing, fixing, or what?

E. W. C.—Letter by post.

W. S. Crowther.—(1) Too harsh, snow too white; softened down, it might be made a good thing of. (2) Ditto, and too patchy. (3) Ditto. (4) The mass of branches on the right is confusing and might be cut off with advantage. (5) Dirty, spotty, and over-toned, and not artistic. (6) Over-toned, and you could have taken a very much better negative had the train been standing still; it certainly is not artistic. (7) Over-printed and over-toned. (8 and 9) Good of their kind, but your work sadly lacks artistic feeling, and is fearfully dirty and untidy.

A. F. W. F.—Hume's Cantilever enlarging apparatus will answer your requirements.

A. J. D.—Hydroquinone may be made up into a 10 per cent. stock solution by dissolving it in alcohol, and it should be used with a preservative—

Hydroquinone	1 oz.
Sulphurous acid	1 ,,
Alcohol, to..	9 ,,

F. E. C.—We should say that the marks were caused by using a caustic alkali, such as caustic potash or soda, in the developer and long-continued washing. We will write makers about them.

W. F. Pease.—(1) Under-exposed, too much foreground, and the left-hand side by about three inches could be cut off. (2) Under-exposed, too harsh in contrasts. (3) Ditto. (4) Very fair. (5) Wants less foreground and less sky. (6) Very fair, much softer and more pleasing than the others. (7) A little too harsh. (8) Ditto. (9) Spoilt by the shadow on right. All your work is too harsh, soot and whitewash.

R. R. Churcher.—(1) Over-toned, paper was not in absolute contact with negative all over, and shows a curious mark down one-half of print. (2) Over-printed and stained. (3) Over-printed and over-toned. All the prints show very careless, dirty work.

Trix.—(1) The pattern of cloth you send is unsuitable for backgrounds, as it will give a spotty appearance. Try the plain coloured material used for window blinds. (2) The best way to send prints to China is to merely roll them up and put inside one of the cardboard postal tubes, but if you want to mount them get some Whatman's rough paper and make slits for the four corners.

Beta.—We have not actually tried the camera, but it strikes us it would turn out equally as good work as the print you send.

Blanche.—We could not say definitely without seeing prints; send up some for us to see.

W. E. A.—Merely pin the c.d.v. up, and focus as large as you can: use a rapid plate, and give about 2 min. exposure in good light, and be careful in developing to keep negative rather thin. Mist scenes will not require a longer exposure than usual; provided you want to get the mist, about 1 sec. with ordinary plate, we should say.

G. Wager.—(1) You cannot do better than get one of Fallowfield's cheap R. R. lenses, of 8½ in. focus, price 20s. 6d. (2) Bring the lens up and we will look at it for you. (3) Pleased to see you any Monday.

W. R. P.—(1) The stronger light has reduced the silver salts more thoroughly. (2) Measure the focal length of your lens, and get the stops cut to one definite series, thus: 1-8, 1-10, 1-11, 1-16, etc., of the focus. (3) We are afraid not.

S. G. Vaughan.—We shall be pleased to lend lantern and slides.

Nemo.—We will lend you some prints. Hodge's "Lantern Slide Manual" is the most complete and best work on the subject. Woodbury's photometer is used in carbon printing; albumenised paper is cut in strips and exposed till it matches the tints.

Sale and Exchange.

Cameras, etc.—Whole-plate extending camera, all movements, two double slides, half cost, £4.—D. Padgham, 67, Paynton Road, Silverhill, Hastings.

Half-plate camera, nearly new, one of Lancaster's Instantos, complete, with two double backs and bag to carry, £3 5s.—H. Middleton, 8, Upper Brook Street, Walsall.

Cameras, Lenses, etc.—For sale, Lancaster's half-plate camera, Optimus R.R. lens, cheap, or exchange quarter-plate hand-camera, good make.—63, Dartmouth Street, West Bromwich.

Enlarging Apparatus.—Multum-in-Parvo combination for enlarging or reducing whole-plate, with extra carriers, cost 37s., will sell for 21s. 6d., good as new.—Hamerston, 2, Park Row, Greenwich.

Hand-cameras, etc.—Swinden and Earp's £7 hand-camera, with several film carriers, £5.—Grove Villa, Franklin Road, Harrogate.

No. 3 Kodak Junior, cost 170s., perfect condition, highest cash offer.—Spurrell, Junior, 6, Tavistock Place, Plymouth.

Hand-camera, Sharp and Hitchmough's Aptus, snap-shot lens, six slides, focussing screen, sunk finder, perfect order, 20s., carriage paid.—Hand, Overton Street, Liverpool.

Lancaster's Omnigraph detective camera, with changing box for six plates, nearly new, 15s.—H. Wilson, 4, Orchard Place, Streatham Common, Surrey.

Stirn's nickel-plated detective instantaneous camera, will take six exposures without changing, price 10s. 6d.; Phœnix instantaneous shutter, quarter-plate, as new, price 7s. 6d.; Vevers' burnisher, 5in. wide, as new, price 5s.; Samuels and Grant's magnesium ribbon lamp, winding up to run 10 or 15 minutes, parabolic reflector about 8in. wide, worth 25s., price 12s. 6d.—Owen, 45, Bloemfontein Avenue, Shepherd's Bush, London.

Chadwick's hand-camera, Eastman rollholder, stand, Taylor's finder, £2 15s.; or with Taylor's lens, iris diaphragms, £5 5s.—W. P., 36, Arundel Square, London, N.

Kodak No. 3, equal new, about 35 exposures, price £5 15s. lowest.—Bygrave, 13, Canterbury Road, Brixton, S.W.

Facile hand-camera, R.R. lens, perfect condition, in waterproof case, with lock and key, £4, or best offer.—Hardcastle, Stonegate, York.

Rouch's Eureka detective camera, complete, quarter-plate, first-class condition, also alpenstock stand for same, £5.—Machin, Ismur, Willssden.

Lancaster's Omnigraph hand-camera, good condition, cheap, 14s.—W. Nichol, Hornsea, Yorkshire.

Lancaster's half plate Rover hand-camera, perfect condition, little used. Offers?—Orr, 15, Talbot Street, Cardiff.

Fallowfield's Facile hand-camera, washer, three printing frames, six dishes, 50s., as new.—M. Helliar, Dorset Villa, Yeovil.

Lanterns, etc.—Magic lanterns, pair of Newton's. 3⅝in. condensers, good lens, fine definitions, 3-wick oil lamps, lamps cost 13s. 6d. each, rackwork for dissolving effects fitted to a strong box which forms a stand, price 50s.; also 24 hand-painted slides, each in separate mahogany case, Scriptural subject, 17s. 6d. the lot; six photo-coloured slides (birds) by Stereoscopic Company, 3s 6d. lot; odd lot photo-coloured slides, 6d. each.—Owen, 45, Bloemfontein Avenue, Shepherd's Bush, London.

Three-wick lantern by Optimus makers, and about 80 photographic slides, nearly new, £2 5s.—No. 378, office of this paper, 1, Creed Lane, E.C.

Lenses, etc.—Lens. Splendid quarter-plate portrait lens by Jamin Darlot, Paris, first-class definition, bargain, 20s.—Trengrouse, Yew Tree Road, Birmingham.

Half-plate rapid rectilinear lens, grand definition and covering power, fitted iris stops, works *f*/8, moveable hood, finest condition, guaranteed, approval, take 30s.—Mrs. Bell, 25, Nelson Road, Clyde Road, Tottenham.

Rapid c.-d.-v. (Darlot), splendid definition, suitable instantaneous for children, new, 25s.; Lancaster's half Instantograph lens, patent shutter, 18s., new; deposit.—Benson, 42, Turret Grove, Clapham.

Shew's Eclipse instantaneous lens for whole-plate, cost 32s., price 15s.—John Stabb, 154, Queen's Road, Bayswater.

Half-plate rapid rectilinear, Waterhouse stops, 13s.; whole-plate rapid rectilinear, iris diaphragms, removable hood, new and perfect, 30s.—Miss Summers, Hillesley, Glos.

Dallmeyer 12 by 10 wide-angle rectilinear lens, patent, £5; Optimus 9 by 7 wide-angle symmetrical lens, £2 15s.; Burr's 8 by 5 rapid doublet, £2 10s.; Taylor, Hobson 6½ by 4¾ rapid rectilinear, iris, £2 10s.; Grubb B3 cabinet lens, £6 10s.—Biddle, 97, Medlock Street, Manchester.

Two Ross' 6in. P.S. lenses, iris diaphragms, paired for stereo work, £6 10s. the pair.—Francke, St. Saviour's Road, Jersey.

Sets.—Countess camera, half, £6; Universal stand, half, £1; Lancaster's rectigraph, half, 50s.; Lancaster's rubralux lamp, 5s.; chronolux shutter, 25s.; Taylor's finder, 3s. 6d.; Watson's exposure meter, 9s. 6d.; leather half-plate case, 15s; plain background, 11 by 11, 10s.; all new.—7, Edwards Road, Burdett Road, Bow.

Half-plate camera, by Perken, Son, and Rayment, three double backs, R.R lens, Waterhouse diaphragms, ash sliding tripod, case, and waterproof focussing cloth, splendid condition, £6 12s. 6d.—No. 384, office of this paper, 1, Creed Lane, E.C.

Half-plate Underwood's exhibition camera, Taylor and Hobson's R.R. lens, Thornton-Pickard time and instantaneous shutter, three slides, finder, threefold legs, cost £10, £6 10s., or separately.—H. Lee, Thornhurst, Wolverhampton.

Shutter, etc.—Rayment's Phantom shutter, 1½ in. aperture, 6s. 6d.; Lancaster's half-plate cycle clip, 5s.—E., 7, Fernbank Road, Redland, Bristol.

Turntable, 5in., 5s.; Lancaster's stereoscopic shutter, 7s. 6d., or exchange quarter-plate slides.—Taylor, Clarence Villas, Saville Town, Dewshury.

Stereoscopic Apparatus.—Ransom's patent combination stereo camera, lenses, three double backs, as new, cost £10, price £5, tripod included, a bargain.—Stereo, 3, Walpole Street, Wolverhampton.

Sundries.—Instantograph dark slides, three, perfect every respect, 6s. 6d. each; 7 by 5 rapid rectilinear lens, new, 24s.; solid leather velvet-lined half-plate case, straps, lock, 15s.; approval.—Richard, Halstead House, St. Ann's Road, Tottenham, N.

30 vols. "Cornhill Magazine," bound cloth, perfect, cash or half-plate portrait lens.—Grocott, Tarporley.

(A) *China Painting Colours.*—Box containing 46 powder colours in 3 in. bottles (scarcely used) by Hancock and Son, Worcester, few brushes, two stoppered bottles, palate knife, glass slab, china slab with list of colours on one side and numbered touches of colours burned in on the other side, whole in mahogany polished case with lock, sell for 30s.; exchange, or offers. (B) *Artistic Anatomy.*—Dr. Marshall's "Artistic Anatomy," cost 31s. 6d., and seven life-sized coloured plates, cost 12s. 6d. each, with key, sell for £4 4s.; exchange or offers. (C) *Botanical Sheets.*—Nine large coloured sheets mounted on thick pasteboard and bound with cloth, varnished, these unmounted cost 40s., sell for 30s.; exchange or offers. (D) *Microscope.*—Good three powers, ½ in., $\frac{3}{16}$ in., $\frac{1}{16}$ in., slide on, rough adjustment by rack and pinion, fine adjustment, spring and screw, swing body reflecting mirror, and all necessary accessories, fitted in polished mahogany lock case, a capital instrument for botanical physiological work; offers or exchange. (E) *Billiard Table.*—Parlour billiard table, slate top, mahogany frame, india-rubber cushions, levelling screws, level, three ivory balls, two cues, six pockets, outside size of table 5 ft. 3½ in. by 2 ft. 10½ in., all in good condition except that the cushions require recovering; offers or exchange. Offers for any of the foregoing items, A, B, C, D, or E, to T. C. W., office of Amateur Photographer. A good half-plate long bellows camera, reversible and swing back, rising front, three or more double slides, or a good rapid rectilinear lens (whole-plate) might be taken in exchange for some of them.—T. C. W., office of this paper, 1, Creed Lane, E.C.

For sale, 2¾ oz. magnesium powder. What offers? or exchange, prefer good half-plate negatives.—No. 382, office of this paper, 1, Creed Lane, E.C.

Amateur Photographer, from September 20th, 1889, to November 27th, 1891, and May 13th, 1892, to December 30th, 1892. What offers?—Bygrave, 13, Canterbury Road, Brixton, S.W.

Cassell's "Cities of the World," 30 7d. parts, complete and perfect; "Amateur Photographer Annual," "Photography Annual," both bound cloth, as new, exchange Lancaster's lantern slide camera, or offers.—No. 383, office of this paper, 1, Creed Lane, E.C.

Induction coil and battery, nearly new, cost 15s., will take 10s., bargain.—B. Brightman, 61, Redland Road, Bristol.

Amateur Photographer, first 13 vols., 8 vols. bound half-calf, with extra numbers; "Quarterly," vol. 1, and numbers 6, 7, 9, 10; "Societies' Reporter," vols. 1 and 2; "Photographic News," 1884, bound, £2 the lot.—John Stabb, 154, Queen's Road, Bayswater.

Four sets lantern slides, 18s.; water motor, ½ h.-p., 25s.; Stott-Thorp gas governor, 15s.; 4lb. S.C. wire, 20s.; musical box, six airs, three bells, 50s.; silver lever watch, 15s.; stamp for particulars; exchange anything.—Boursbaw, Middleton, Manchester.

Tripod.—Shew's walking-stick tripod, new, cost 25s. cash, or portrait lens, half-plate.—Grocott, Tarporley.

WANTED.

Changing Bag.—Wanted, changing bag for 10 by 8, also two single mahogany slides, half-plate, with one quarter-plate carrier; approval.—H. Tullett, High Street, Three Bridges.

Dark Slides.—Wanted, two double dark slides for Fallowfield's full-plate camera, wood or metal.—60, Load Street, Bewdley.

Hand-Cameras, etc.—Wanted, hand-camera, must have rectilinear lens and focus arrangement (Swinden and Earp's or Adams and Co.'s Ideal); also gas cylinder, 40 ft.—Westworth, Lowe Street Printing Works, St. Helen's, Lancashire.

Wanted, twin lens hand-camera; also Frena camera. Say best price, and if approval.—C. W., office of this paper, 1, Creed Lane, E.C.

Wanted, Shew's Eclipse hand-camera.—B., 116, Tower Baggot Street, Dublin.

Wanted, good hand-camera, Adams' Ideal preferred, made to focus; will exchange geared Facile bicycle and cash, or splendid cylinder bore flute and case, cost 9 guineas.—P., 57, Hanley Road, Hornsey Rise, N.

Lenses, etc.—Wanted, 5 by 4 R.R. lens; exchange pair Lerebour's portrait combination lenses fitted to sliding body, stereoscopic camera, single dark slide.—Payne, 36, Alexandra Road, Croydon.

Wanted, good portrait lens for Lancaster's Instantograph, half-plate.—Grocott, Studio, Tarporley.

Wanted, matched pair of wide-angle rectilinears about 3¾in. focus.—Stereo, 3, Walpole Street, Wolverhampton.

Rollholder.—Wanted, quarter-plate rollholder or changing box for films, cheap; approval.—C. 1., 5, Hill Road, N.W.

Sets.—Wanted, half-camera set, or parts, paralle double extension, Thornton-Pickard shutter, rapid rectilinear lens, 5 by 4 slides and Wray's lens; approval.—Morrish, Dagmar Terrace, Gosport.

Half-plate camera, three backs and stand, good maker, in exchange for Ormonde Safety, nearly new, or sell safety; also 3in. centre lathe, no stand, and horizontal engine, cylinder 3 by 1¾in., or exchange for half-plate lens and shutter.—131, Cannon Street Road, E.

Shutters, etc.—Wanted, leather case and Thornton-Pickard shutter for Ross' 10 by 8 R.S. lens, also stick tripod for Facile, cheap for cash or good exchange.—Braithwaite, Jeweller, Carnforth.

Tripod.—Wanted, folding tripod for half-plate camera, cheap.—C. P., Asylum, Enniscortby.

Stand, small light four-fold stand wanted, cheap, at once.—Harvey, 96, Offord Road, Barnebury, London.

Good walking-stick tripod; approval; state lowest price.—Frank Gray, Essex Villa, Stevenage.

Washer.—Washer suitable for whole and half plate negatives and prints, with movable rack; must be good; state particulars.—Frank Gray, Essex Villa, Stevenage.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Cameras and Sets.—Camera, 10 by 8 finest mahogany, double extension, leather bellows, wide-angle movement, rising and falling front, fine rapid rectilinear lens, Waterhouse stops, two double slides, clips, and catches, and sliding two-fold stand as new, £8 15s.; whole-plate Duchess camera by London-Paris Optic Co., Aldersgate Street, grand lot. all movements, finest mahogany, best leather bellows, double extension, rising, falling, and cross fronts, two double slides, metal divisions, rapid rectilinear lens works *f*/8, Waterhouse stops and three-fold ash tripod, as new, £9 15s.; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; whole plate camera, as new, by Laverne, rising, falling, and cross, reversing wide-angle movement, best double extension, leather bellows, rapid rectilinear lens, Waterhouse stops, three double slides, and folding stand, warranted, £8 7s. 6d.; half-plate camera, by Houghton, Holborn, grand lot, double extension, rising and falling front, swing and reversing back, three double slides, grand rapid rectilinear lens, iris stops, works *f*/8, and three-fold stand, set as new, £6 10s.; Rapidograph half-plate camera, by Perken, Son, and Rayment, double extension, leather bellows, reversing and swing, three double slides, fine rapid rectilinear "Leviathan" lens, iris stops, grand definition, three-fold stand and case, £6 17s. 6d.; half-plate Underwood's Instanto camera, leather bellows, square wide-angle movement, rising, falling, and cross fronts, double dark slide, quarter carrier, rapid rectilinear lens, Waterhouse stops, and folding stand, £3 17s. 6d.; half-plate "Duke" camera, double extension leather bellows, rising, falling, and panel front, back and front extension, two double slides, metal division, rapid rectilinear, Waterhouse stops, and folding stand, as new, £6 5s.; quarter-plate extending camera, bellows body, rising and falling front by Morley, Islington, good landscape and portrait lens, double dark slide, and folding stand, 22s. 6d.; quarter-plate Optimus camera, square body, back extension, three double dark slides, fitted good rapid rectilinear, and folding stand, as new, 40s. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Hand Cameras.—Lancaster's Rover hand-camera, good lens, see-saw shutter, iris stops, finder, etc., carries twelve quarter-plates, in leather case, 45s.; Laverne's hand camera, covered morocco, good lens, iris stops, time and instantaneous shutter, two finders, carries twelve quarter-plates, 60s.; No. 3 Junior Kodak, fitted R.R shutter, adjustable focus, new spool of sixty films, in leather case, £5 15s; No. 1 Kodak, R.R. lens, shutter, etc., carries 100 films, in leather case, 37s. 6d., cost £5 5s.; Radial hand-camera, by Marion, fitted "Sobo" lens, carries twelve quarter-plates, shutter, two finders, focusser, etc., in leather case, £5 17s. 6d.; Optimus detective camera, carries twelve quarter-plates, brass bound, fitted Wray's 5 by 4 R.R. lens, Thornton-Pickard shutter, two finders, level, etc., as new, £5 7s. 6d.; Adams' Ideal hand-camera, all latest improvements, grand condition, fitted R.R. lens, time and instantaneous shutter, two finders, carries 12 quarter-plates, covered morocco, £5 12s. 6d. lowest; Ariel pocket camera, leather extending bellows, fitted Wray's 5 in. R.R. lens, Thornton-Pickard shutter, three double book-form slides with catches and clips, Taylor and Hobson finder, the set fitted in waterproof case, very light and portable, as new, £5 5s.; Tit Bite hand-camera, good lens, two slides, covered leather, best order 10s. 6d.; Optimus detective camera, Optimus rapid rectilinear lens time and instantaneous shutter, adjustable focus, three double slides, covered leather, two finders, finest condition, £4 5s.; Houghton's Automatic hand-camera guaranteed as new, rapid rectilinear, rotating stops, Thornton-Pickard shutter, carries twelve quarter-plates, fine camera, £4 10s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium), second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Dallmeyer No. 3 10 by 8 rectilinear landscape, Waterhouse stops, finest condition, £4 17s. 6d.; whole-plate rapid rectilinear by Parker, Waterhouse stops, movable hood, 42s.; Optimus 9 by 7, portable symmetrical, rotating stops, *f*/11, as new, £2 17s. 6d.; whole-plate wide-angle rectilinear, by Laverne, fine definition, rotating stops, as new, 30s.; Lancaster's ½-plate rectigraph lens, Waterhouse stops, thorough order, 30s.; 7 by 5 "Black Band" lens by London Stereoscopic Co., Waterhouse stops, covers well, finest order, 45s.; 7 by 5 rapid rectilinear lens by Newton of Liverpool, Waterhouse stops, as new, 25s.; Dallmeyer's 1A wide-angle landscape, 5¼ in. focus, rotating stops, covers 5 by 4 plate, £2 10s.; Ross's No. 4 portable symmetrical 6 in. focus rotating stops, as new, 63s.; Crouch wide-angle rectilinear 6 in. focus, rotating stops, as new, 42s.; Laverne 5 by 4 wide-angle rectilinear, finest condition, 17s. 6d.; Taylor and Hobson's quarter-plate rectilinear, iris stops, 5 in. focus, finest condition, 45s.—On view, City Sale and Exchange Rooms, 54. Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

Magic Lanterns and Slides. — Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

Regulators and Gauges.—Great reduction, in price. Either can now be had of Walter Tyler for 14s. each. The largest stock of gas cylinders in England. Best seamless steel, tested and valved, and all sizes at very low prices.

Slides from Negatives and Pictures.—Walter Tyler manufactures and colours slides on the premises, thus ensuring speedy delivery, and prices are most moderate.—Walter Tyler, 48, Waterloo Road, London.

Biunial Lanterns.—If you are in want of a really good biunial lantern, perfect in every respect, call and see Walter Tyler's entire brass fronted, mahogany-bodied, lined with Russian iron, and fitted with new best quality lenses, and sold at a most moderate price. The top lantern will take a 4-wick lamp. These are great bargains.—Walter Tyler, 48, Waterloo Road, London.

Hire Department is now perfect. Largest and best collection of slides in the world; over 200,000 always in stock. Temperance, travels, Scripture, educational, comic, tales, etc. Cheaper than any other house, no extra charge for coloured slides or effects. Special terms for large quantities.—Walter Tyler, 48, Waterloo Road, London.

Lanterns and Slides.—If you wish to hire, purchase, or exchange, you cannot possibly do better than go to Walter Tyler, who makes this business a specialite, and you will thus save dealer's and all intermediate profits.—Walter Tyler, 48, Waterloo Road, London.

Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps. Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; scientifically constructed, not commercial; several whole and half plate for sale, cheap.

The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Science Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

Magic Lanterns, Magic Lanterns.—Largest assortment in the world, cheapest and best, nicely japanned lantern, 4 in. double condensers, portrait combination front lenses, rack and pinion, four-wick lamp, in case, £1 7s. 6d. Others more elaborate, but as cheap.

The Docwra Triple Prize Medal, highest award, supplied to Dr. H. Grattan Guinness, Capt. C. Selwyn, Madame Adelina Patti, and the Royal Polytechnic, etc.

The Malden Triple; supplied to B. J. Malden, Esq.; unparalleled results; Capt. Chas. Reade, R.N.

Fine Triple Lantern; telescopic draw tubes, four set of high-class lenses, £38 10s., worth nearly double. Given away.

Special Triple; mahogany, entire solid brass fronts, £12 12s.; a really good lantern, unequalled.

Elegant Mahogany Biunial; brass fronts, £7 10s.; blow-through safety jets, 6s. 6d. and 8s. 6d.; mixed gas jet, 12s. 6d.; Malden double dissolving tap, 12s. 6d.; regulators, 12s. 6d.; gauges, 12s. 6d.; grand effects; particulars free, before purchasing. Send for Mr. Hughes's grandly illustrated catalogue, over 180 finely cut original wood engravings, price 6d., postage 3d.; separate list of 60,000 slides, price 6d., postage 3d.; pamphlets free; second-hand lists free of bargains.—W. C. HUGHES, Brewster House, Mortimer Road, Kingsland, London, N. Fifty slides, all nicely coloured, on loan for 3s., in special despatch boxes.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

SECOND HAND BARGAINS at Butcher and Son's, Blackheath.

Lenses.—Andrew Ross's rapid cabinet lens, also half-plate studio camera and back, £10, lens cost £17 15s.; Sands and Hunter detective rectilinear, 4in. focus, rotating stops, as new, 35s.; 7 by 5 Lancaster's W.A. rectigraph, iris diaphragm, 20s.; Lancaster's half-plate Instantograph lens and shutter, complete, 15s.; 9 by 7 Optimus R.R., 12in. focus, Waterhouse stops, as new, 70s.; 9 by 7 Optimus portable symmetrical, rotating stops, equal to new, 70s.

Cameras.—Whole-plate by Stereoscopic Company, three backs, solid leather case, and tripod stand, all as new, excellent set, £9 10s.; whole-plate Meagher camera, one single back and one double back, strong tripod stand, and 9 by 7 French R.R. lens, Waterhouse stops, £5 10s.; half-plate by Thomas and Co., square bellows, three backs, all equal to new, tripod stand, solid leather case and brahma lock, 7 by 5 R.R. lens and 7 by 5 W.A. lens, Guerry shutter, first-class set, splendid condition, £12; half-plate Perken, Son, and Rayment's A.R. camera, three backs, £3 10s.; half-plate camera, London made, three backs, and R.R. lens, Waterhouse stops, £3 10s.; half-plate camera, London made, one back, single lens, with rack adjustment, £1 15s.; half-plate Lancaster's Instantograph, lens, one mahogany double dark slide and one metal slide, stand and case, £3; half-plate Underwood's Convention, £4 4s. set, new, shop soiled, £3 10s.; 5 by 4 London made camera, and three backs, in solid leather case, £2 5s.; quarter-plate Lancaster's Instantograph, three slides, waterproof case, without lens, £1 15s.; quarter-plate London made camera, back and stand, good condition, 30s.; quarter-plate Lancaster's Instantograph, old pattern, three backs, rectigraph lens, Waterhouse stops, very cheap, 30s.; quarter-plate Shew's Eclipse, lens, shutter, detective case, six double backs, and Eastman rollholder, complete set in perfect condition, £7; quarter-plate London-made camera, three backs, and R.R. lens, Waterhouse stops, equal to new, £3 15s.; stereoscopic camera, Watson's, three double slides, perfect condition, also Morgan and Kidd's roller slide to fit, £3; 12 by 10 Meagher camera, double extension, one single back, suitable for enlarging camera, £2.

Hand - Cameras. — Half-plate Stereoscopic Company's Artist, solid leather case, as new, £10; Optimus Magazine quarter-plate, slightly shop soiled, £6; mahogany hand-camera, case, to take ordinary quarter-plate camera, 20s.; No. 1 Kodak, perfectly new, loaded 60 exposures and sealed, as supplied by the Company, £2; Samuel's Magazine, as new, take 12 quarter-plates, 25s.; Mayfield's quarter-plate, in mahogany case, Laverne R.R. lens, three double backs, complete, £4.

Any of the above may be seen at W. BUTCHER AND SON'S, Photographic Stores, Blackheath, London, S.E., one minute from station S.E.R, or by arrangement at 315, Regent Street, W. Second-hand apparatus bought, sold, or taken in exchange. Inspection or correspondence invited.

PHOTOGRAPHIC STUDIO (one of the finest in London), in a fashionable West-end thoroughfare, electric light installed, and good reception rooms, to be let, or the long lease to be sold.—Stark and Co., 12, Baker Street, Portman Square, W.

The Amateur Photographer

elephone Nº 1645

Telegraphic Address: VINEY, LONDON

Offices: 1, Creed Lane, Ludgate Hill, London, E.C

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OUR ◆ VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 till 5 o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc, from 10 till 1 o'clock.

Articles.—Psychic Photography—On the Toning of Solio Paper (Wellington)—Round West London with Cycle and Camera (Stein and Varden)—On Choosing a Hand-Camera (G. C.).

The A B C of the Lantern.

Leader.—Instantaneous Shutters.

Our Views.—Photographs of Actresses—Miss Barnes and Dr. Mitchell—The Lay Press Again—Ghost Photographs—Professional and Amateur—An Example to Others—A London Professional Amateur—Amateurs a Mixed Blessing—Lending Dark-Room—Central Photo Club—Death of Mr. G. W. Wilson.

Letters.—Angle Formulæ (Wrangler; Rice)—The Sandell Plate (Sandell)—Crystal Palace Exhibition (Wollaston)—Rival Amidols (Fuerst).

Societies' Meetings.—Aston—Birkenhead—Birmingham—Crewe—Croydon (Micro)—Croydon—Durham—Fairfield—Gosport—Hackney—Leeds—Liverpool (A. P. A.)—Liverpool—Llandudno—N. London—Oxford—Preston—Devonport—Rotherham—Sheffield—Shropshire—Stafford—Wigan—Woolwich.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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"Amateur Photographer" Monthly Competition, No. 46. Hand-Camera Work.—Latest day, April 13th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, April 28th, 1893.

Actresses and music-hall artistes (as is well known) are liberal patrons of the professional photographer. It is sometimes thought that the large business done in portraying the fair ones in their various stage costumes and attitudes may to a considerable extent be ascribed to human vanity. However true this may be with regard to some of these ladies, we have it on the authority of *Answers* that this is not the case with many of the less distinguished artistes who have not attained to the degree of affluence enjoyed by their sisters. Before they can hope to attain an engagement they have to forward to their agents numerous photographs of themselves, and these are submitted to the managers likely to engage them. Some of the managers make a practice of keeping all such photos so sent to them, for the adornment of the walls of their green-rooms. The consequence is that the unfortunate artist is put to a continual expense in keeping up her stock of portraits, which she very often can barely afford.

◆

Both Miss Barnes and Dr. Mitchell have evidently made good use of their visit to England, as the former is writing an illustrated account of her tours, and Dr. Mitchell is giving a series of five lectures, with lantern slides, illustrative of his different travels.

◆

We have yet another curious statement by the lay Press, which is amusing and instructive:—"A French photographer lately invented a process by which a bit of ordinary paper—the leaf of a book, for example—can be made sensitive to the light without affecting the rest of the page. Acting on this hint, the French War Minister has begun to take portraits of conscripts and recruits on the paper, which gives their height, complexion, age, etc., and the cheapness and swiftness of the operation, which is already in use in the French army, is something remarkable. It costs only 1 c. to get two copies of a portrait of Jacques Bonhomme—one for his individual register, and the other for his muster-roll; and so rapid is the process that in a few hours a whole regiment can be photographed. The soldiers file along, one by one, and each sits for three seconds in the photographic chair, and the thing is done. They even mark the man's regimental number on his breast with chalk, and thus get a complete identification of him in case of desertion or death."

◆

We have elsewhere a note on ghost photographs, and the subject is one which at the present time is the common talk of all photographers. We have a lot of information on the subject, but still it would be as well if any of our readers, who get the chance to do anything of this kind, would let us have the results of their experiences.

WE do not want negatives with ghosts of images on, but images of ghosts. Of course, everybody knows the usual way to make these, but if, as the spiritualists say, there is a great deal more in it than photographers know, some of our readers may have a chance to try their hand.

* * *

THE old jealousy between professional and amateur dies hard, but dying it is. Here and there it crops up, and sometimes in most unexpected places. Messrs. Allison and Allison, of Queen's Arcade, Belfast, have, however, taken the right view of this question, and send us a neat little pamphlet which sets forth the prices for the various work they are willing to undertake for amateurs, such as developing, printing, enlarging, etc.

* * *

IN a letter to us they state: "You will see what we are doing to meet the amateur question, and from experience we have had, we think our professional brethren might follow our example with benefit to themselves and the amateur alike."

* * *

IN conversation with a well-known London professional the other day he said, "I am sorry that some of us professionals are such fools as to treat amateurs as enemies—I don't. I make friends with them and make money out of them. Of course, some may say 'the amateur spoils our trade.' Well, when an amateur can turn out better work than I can, and get a job because of it, let him—it's about time I shut up then!"

* * *

THERE is another side to the question of the amateur, which unfortunately does not show him in a good light—that is, with regard to the use of dark-rooms. The privilege—because it is a privilege, even when paid for—is often abused. One gentleman writes us as follows:—

> "My dark-room answers my own purpose well, but it is my store-room, and therefore we continually in the course of business want something from it and *cannot wait*, hence you see I don't look on lending it with much favour, especially as some noodles stick there indefinitely, and often say they *want* to change their plates instead of asking if they can. It don't suit me. Amateurs are not an unmixed blessing, and are frequently more bother than they are worth."

* * *

WE had an experience of lending our dark-room at home once, which taught us a lesson. At one time we had to use the bath-room as a dark-room, and we had one visitor who "wanted" to use the dark-room. He did, and also developed some trial plates, and made more mess in ten minutes than we should in ten hours; the developer and water were slopped all over the place, and we were then told that the light was not safe and had fogged his plates. We certainly felt that "amateurs are not an unmixed blessing."

* * *

THE Executive Committee of the Central Photographic Club, appointed by the public meeting on March 6th, has already got to work, with the result that suitable premises and Club-rules are under active consideration. Another meeting will be called in a few days to consider the propositions of the Committee. The Hon. Secretary pro tem. has received a large number of applications for membership, particulars of which will be sent in due course to the applicants.

* * *

IT is with regret that we have to record the death of Mr. G. W. Wilson on 9th inst. Mr. Wilson had considerable art training in his young days, although originally apprenticed to a joiner, but subsequently painted miniatures and photographs. He then took up stereoscopic photography, and having set up in business for himself founded the firm of G. W. Wilson and Co., whose artistic prints and lantern slides are so well known. Mr. Wilson was in his seventieth year, and leaves a widow and large family, with whom our readers will condole at the serious loss they have sustained.

INSTANTANEOUS SHUTTERS.

IN our issue of 24th ult., page 124, appears a letter from "C. P." on the above subject, which gives an account of an attempt to compare the action of two shutters. We say "an attempt" advisedly, because there being, as pointed out by "R. W. J." in our issue of 3rd inst., page 144, absolutely nothing but unknown quantities, it is impossible to solve the problem. Possibly, however, the following notes may not be out of place on the question.

Referring to "C. P.'s" letter it must be noted that there is no information as to the precise moment when the exposure was made—merely "as he was taking his leap. . . . On developing I found that my doggie was nearer to the ground on one plate." If the "doggie" was rising to his leap it is obvious that it would mean that that portion of the plate was exposed before the other, and if the doggie was coming down after his leap, he would be exposed after the other part of the plate, because he is near the ground, and the scene being upside down in the camera and all roller blind shutters working from top to bottom, *i.e.*, foreground to sky, acceleration of the speed of the slit would mean merely that the foreground and all objects near it would be exposed before the other. The quantities in "C. P.'s" letter, however, are so indefinite that we can make neither head nor tail of it.

The deduction drawn from the two negatives, however, is very curious, for he says, "But the plate exposed with the blind shutter was under-exposed, whilst the other plate was sooner over-exposed." We cannot understand quite what is meant by this. If our correspondent means that "the other plate" fogged quicker in developing it certainly cannot be said to be a proof of over-exposure. The sentence would lead us to suppose that over-exposure was something which happened in developing, which is not usually the case.

If our readers turn to pages 65-67, vol. xiv., No. 355, for July 24th, 1891, they will find there a complete article on focal plane shutters, from which we extract the following:—

> If we come to consider theoretically the light admitted by various forms of shutters, we get a series of figures which are very instructive and by no means difficult to understand; at least, I hope to be able to show to the least mathematical mind how we may approximately gauge theoretically the amount of light transmitted by any shutter. The first consideration is that the aperture of the lens is round, and the light transmitted or the field of illumination is also a circle, but we do not use circular plates, but rectangular parallelograms, the diagonals of which are diameters of the circle of illumination. We may, therefore, represent our transmitted light by a rectangle, which may be drawn in the proportion of the plate we are using.
>
> Thus fig. 1 will represent the theoretical quantity of light which would be transmitted by a lens which was opened by a shutter in no period of time, and remained open for $\frac{1}{x}$ of a second, andwas then in closed in no appreciable period of time.
>
> Now if we take the case of an ordinary drop shutter, we shall find that there is only one brief period of time at which the lens is fully open, and this period is proportional to the length of aperture in the dropping-piece, and the equality of illumination is equal to the height the shutter drops before the lens begins to be uncovered. We will suppose that in the first case the aperture in the shutter is rectangular or actually a square which just encloses the lens aperture; we may then represent the amount of light admitted during any given exposure by two triangles, as shown in fig. 2. From the figure it will be seen that the only point when the lens is fully open is EH, because before this point the aperture in the falling piece has been opening the lens aperture, and at this point it momentarily becomes a square, inscribed around the circle representing the lens, and the total quantity of light is allowed to pass through the unobstructed lens; immediately after this point we get

the lens being closed. Now, it is very easy to reckon up the different quantity of light admitted in each case. Supposing we assume that our rectangle measures 6 by 4, then $6 \times 4 = 24$, the area or total amount of light admitted in any given fraction of a second with our

FIG. 1.

ideal shutter. In the case of fig. 2 we have not the rectangle ABCD, but two triangles EFH, and EGH. Now, to find the area of a triangle the rule is "half base height," or, put it more intelligently, $\frac{1}{2} \times \text{base} \times \text{height}$. Now, in our case we can easily determine this, because the base of our triangles is EH in both cases, the height from F to I and G to I along the dotted line, therefore we get:—

$\frac{1}{2} \times EH \times FI = \text{area } 1.$
$\frac{1}{2} \times EH \times GI = \text{area } 2.$
$\therefore$ area 1 + area 2 = the total amount of light. Now, substituting values for these, we get:—
$\frac{1}{2} \times 4 \times 3 = 6.$
$\frac{1}{2} \times 4 \times 3 = 6.$
$\therefore 6 + 6 = 12.$

Therefore, a drop shutter working at or close to the lens will only admit half the quantity of light which our ideal shutter does.

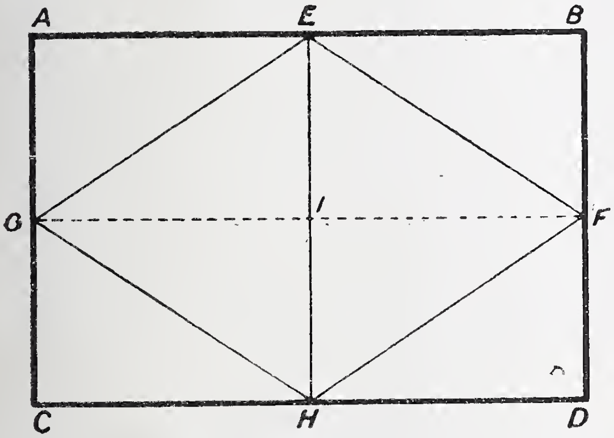

FIG. 2.

. . . .

Three-hundredths of a second is too slow a speed for photographing the quickest motions of animate or inanimate nature, and the successful pictures obtained with shutters of that speed are due to the fortunate coincidence between the moment of exposure and a slower phase of motion. Thus, with such a shutter, the most rapid phases of motion produce blurred plates which are thrown into the waste box, and science receives but a few special, and therefore misleading, data in place of the many which the art of photography should be made to yield. This generalisation forced itself upon Mr. Hubbard and myself after two years of patient experimentation with every conceivable form of shutter applied before, between, or immediately behind the lens; and at his suggestion, we then abandoned all work in that direction and devoted ourselves to the perfection of the focal-plane shutter, as described in the quotation from Sutton at the beginning of this paper. I know of no commercial shutter which passes more than 50 per cent. of the light which falls on the lens during its action; while the focal-plane shutter has been lying idle for twenty-five years, in spite of its ability to pass close on to 100 per cent. What may be called the light advantage of the focal-plane over an ordinary shutter is well indicated by the following considerations. With any form of shutter in which a slot one inch in width passes at a uniform velocity behind a lens one inch in diameter, the sensitive plate will receive but 50 per cent. of the light which falls on the lens during the action of the shutter. Supposing the lens to be five inches in focal length, if the slot is merely moved backward to within one quarter of an inch of the plate, 95 per cent. of the light falling on the lens during the action of the shutter will reach the plate. Further consideration of this subject shows that in any single shutter placed immediately before, between, or behind a lens of one-inch opening, the percentage of light passed is equal to the number of inches of slot travel, less one, times the units of light per inch. Thus a one-inch slot travels two inches in uncovering and covering the lens. Calling the total light falling on the lens during the action of the shutter equal to 100 units, we have 50 units to each inch of slot travel. Slot travel two inches minus one $= 1 \text{ in.} \times 50 = 50$, which is the percentage of light passed. A two-inch slot would travel three inches, and there would be $33\frac{1}{3}$ units of light to each inch: $3 - 1 = 2 \times 33\frac{1}{3} = 66\frac{2}{3}$, the percentage of light passed. Continuing the computation, it will be seen that a three-inch slot would pass 75 per cent. of the light, a four-inch slot 80 per cent., and so on until, in order to pass 90 per cent. of the light, it would be necessary to have a slot nineteen inches long, pass by the lens in the same time that the focal-plane slot passes over five-hundredths of an inch, which is the diameter of the cone of rays from a one-inch lens of five inches focus at a point one-quarter of an inch in front of the sensitive plate. Opposed to this tremendous advantage, there is only one theoretical objection to the principle of the focal-plane shutter, and that is, that all parts of the sensitive plate are not exposed at the same time. But practically this objection does not hold good, since the velocity of slot motion may be made so great that there is no sensible distention of the phase of motion of the moving object. Moreover the possibility of any distension may be eliminated by setting up the camera at such a distance from the moving object that the angular value of its image on the sensitive plate shall be equal to or slightly less than the width of the shutter slot.

We think the above extracts completely answer any statements adduced by our correspondent, and we may add for his benefit that having used a focal plane shutter for nearly six years we are firmly convinced that so far this class of shutter has not received the attention it deserves. Further, nearly all the finest work of such men as Anschütz, Marey, Muybridge, etc., is done with shutters of this class.

Letters to the Editor.

ANGLE FORMULÆ.

SIR,—Would you kindly allow me space for a short explanation called for by your comment on my letter under the above heading appearing in your issue of March 10th.

I had [not] overlooked the fact that Mr. Rice claims only for his formula (AMATEUR PHOTOGRAPHER, vol. xvii., p. 130) that it gives results true within *one degree*, but in his proof, p. 145, the first time that any deviation from absolute accuracy is mentioned is in the foot-note explaining that an error amounting to not more than a *fraction of a degree* is introduced by omitting the decimal, so I thought that this was the only part in which he imagined he had deviated from absolute accuracy. My objection was to the previous statement that the angle BGC : 90° : : AC : GD, which is not true. The mathematical form of the article, the Q.E.D. at the end, misled me into the idea that it was intended to be treated as a mathematical proposition. Had Mr. Rice simply said, "I find the following formulæ give results near enough for practical purposes." I should have had no fault to find, but I did object to their being based upon a false assumption, supported by mathematical reasonings.

A CAMBRIDGE WRANGLER.

SIR,—I see from the current issue that you have taken up the cudgels on my behalf, but I am afraid that your remarks will not satisfy "A Cambridge Wrangler" on one particular point. Had it not been for the unfortunate omission of an explanatory foot note in copying out my "construction" for the press, he would have seen that although I take certain angles as absolutely proportional to certain lines, I am aware that this will not bear a strict mathematical proof. The variation, however, is so very slight that I am justified in assuming this as practically correct in constructing an empirical formula. These rules are not intended for Cambridge wranglers, but for the ordinary working photographer, who will be satisfied if he can calculate his angles within a small degree of accuracy. If "A Cambridge Wrangler," instead of so hastily expressing his mathematical indignation, had taken the trouble to put the formulæ to a practical test, he would have discovered "that the calculations based on this assumption are" *not* "without value," but that "the end justifies the means." The errors introduced have but a slight effect on the final result, which will be found quite as exact as that obtainable by actual measurement with ordinary mathematical instruments. As far as I know, this is the first time that any formulæ have been constructed for this purpose, which require a knowledge of the first four rules of arithmetic only, and I am curious to see if "A Cambridge Wrangler" has anything more practical to propose.

That your readers may judge the value of these formulæ, I append a few calculations of angles worked out by these simple rules, and also by the ordinary trigonometrical method. It will be seen that the maximum error given by the formulæ at any one of these proportions does not exceed *one degree*.

Yours, etc., WILLIAM RICE.

Focus, in 10ths of Plate.	Angle by Tables.	Angle by Formulæ.	Error.
2	136° 23′	136° 33′	10′
4	102 41	103 39	58′
6	79 37	78 45	52′
8	64 0	63 0	1° 0′
10	53 7	52 30	37′
12	45 14	45 0	14′
14	39 19	39 22	3′
16	34 43	35 0	17′
18	31 3	31 30	27′
20	28 5	28 38	33′
22	25 37	26 15	38′
24	23 32	24 13	41′
26	21 47	22 30	43′
28	20 15	21 0	45′
30	18 55	19 41	46′
40	14 15	15 0	45′
50	11 26	12 6	40′
60	9 32	10 9	37′
70	8 11	8 45	34′
80	7 9	7 40	31′
90	6 21	6 52	31′
100	5 43	6 10	27′
200	2 52	3 7	15′

* * * *

MR. PRINGLE AND THE SANDELL PLATES.

SIR,—I shall be glad if you can find space for what must constitute my reply to Mr. Andrew Pringle's opinions on the Sandell plates, as published in the *Camera Club Journal* of December last, and which I should have dealt with earlier but for a prolonged absence from home. These opinions, emphatic as they were (I am advised from several quarters) have tended to do the interests of the plates considerable harm; but I should be first to admit that this result was altogether foreign to Mr. Pringle's intention. The experiments spoken of, although expressly described as of quasi-scientific character, have been regarded as having special interest for the practical worker, and, therefore, the necessity for my pointing out wherein I consider they are at fault.

To fully discuss all the points involved in Mr. Pringle's arguments would require a lengthy dissertation on photographic theories and practice, and a too great intrusion on your space, so I will endeavour to take the vital points only. Mr. Pringle seems certainly to fail to grasp the capabilities of the plates, and were he an authority of lesser calibre, I should be tempted to say there was a failure in his appreciation of the potentialities of the single sensitive film.

Speaking of the photography of an interior, he says, "If the exposure be only long enough to affect the upper film, the result is in no way different from that on an ordinary plate." This reminds me that it would be more convenient if it was made manifest from the commencement that the position I take up regarding the plates is this: I assert and challenge the contrary proof, that the plates are an absolute cure for halation from support reflection, in all practical photographs, and that their latitude in exposure is practically unlimited. Reverting to the interior, I submit that an exposure should not be quoted unless accompanied by the development given to render obvious the work done in the film or films during the exposure. Now, this is a most important item in considering the utility of the new plates. Can Mr. Pringle imagine an exposure on any interior with a clear-glass window, admitting direct skylight, where the inside details are even poorly rendered on the single film, where the light from window has not gone through and through the film? He must have surely forgotten that halation is not unknown in snapshot work. Mr. Pringle remarks in one place, he was surprised how little light passed through the single film; it has been a matter of surprise to myself how much passes the film. On more than one occasion have I, in trying the experiment of stripping off the top film, found a printable image of the highest lights of a snapshot developed in the second film. It may be remembered that the finer emulsion of the latter is more amenable to development than the more sensitive one, and the image formed, although apparently having a similar density, has a better printing value. To these qualities I attribute the characteristic softness of the prints from all exposures on the plate. Mr. Pringle also asserts that two or three times the exposure of an ordinary plate produces a failure with the "Sandell" plate, but if the higher lights of the snap-shot have so penetrated the plate, how much more so will the exposures in question? I can quite understand his failures in his case, if he relied on the preposterous operation (for practical work) of stripping or a total clearing away the upper image. But I think I can demonstrate that for this, and even a greater increase on the normal exposure, the image-forming capacity of the lower film is not a necessity, and, leaving out of consideration latitude obtainable by developer modification, Mr. Pringle seems to ignore the constitution of the ordinary film, and treats of it as if it were a single molecule of silver haloid; but I am sure on reflection he will agree with me that the latitude of the ordinary plate is really due to the superposition of many molecules, and also that only the molecules to a certain depth can be utilised effectively for the image formation, the remainder being simply serviceable as a screen. If development be pushed into this screen, the result is halation. Now, in the multiple plate, the whole of these molecules can be used up to the last line, and this I maintain will admit of a greater increase in exposure than that which caused failures in Mr. Pringle's experiments.

Then, as to Mr. Pringle's joke (for surely it was such), when he spoke of the plates making him miserable, he said, "I do not think they are of any real value unless you give them enormous over-exposure." This is very comical, and smacks much more of a desk emanation than a dark-room one; their latitude for prolonged development would seem to indicate superior advantages for the quickest exposures, as well as for the longest, and I can assure Mr. Pringle that he is mistaken in fancying that any intermediate exposure between maximum and minimum necessarily yields a failure; the amount of exposure to be given, above the minimum allowable, by an experienced worker, depends entirely upon his own tastes, as to how much of his shadows he wishes to render. There is no occasion for the merest tyro to consult an exposure machine.

Before I close, I must express my surprise that Mr. Pringle could have been informed that half-second *f*/64 under trees was the correct exposure for the plate. His informant could scarcely have consulted the prospectus sent with each box. In this he is directed to give the exposure of our table for the cyclist plate as a minimum. This, under trees, would be four minutes sixteen seconds; and for landscape, with heavy foliage, three seconds. I do remember making the first of a series of experimental exposures with Mr. Pringle, and giving half second on heavy foliage, but I assure him he is mistaken if he understood me to suggest that I considered this sufficient; I did it simply to show the amount of reduction that could be effected in the film as a result of this short exposure.—I am, yours, etc.,

Thornton Heath, March 11th, 1893. J. T. SANDELL.

* * * *

CRYSTAL PALACE EXHIBITION.

SIR,—Mr. F. P. Cembrano, jun., having been the first gentleman to consent to act as judge at the forthcoming National Photographic Exhibition, we deeply regret that, owing to an oversight, his name should have been omitted from the list sent you on the 6th inst.—Yours, etc.,

S. G. BUCHANAN WOLLASTON,
CHARLES W. HASTINGS.

* * * *

RIVAL AMIDOLS.

SIR,—Our attention having been called to a statement in the March issue of the *Practical Photographer* to the effect that "the difference between the rival Amidols had been settled," we beg to inform you that that statement is erroneous, and that, so far from the difference being settled, the same is now the subject of litigation, we having commenced proceedings for infringement of the Amidol Patent which Mr. Hauff owns, for whom we first introduced it in this country.

This being so, we, of course, refrain from comment until the points at issue have been decided by the judge.

We hope you will give this letter publicity, as the statement referred to above is calculated to injure us in our business.—Yours, etc., FUERST BROTHERS.

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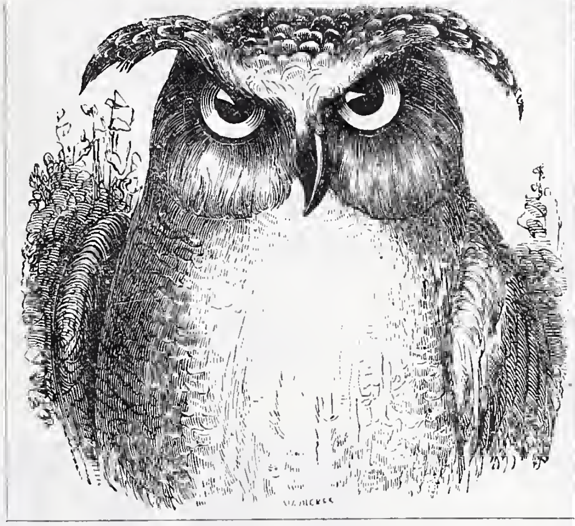

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OTHER TOWNS IN FUTURE ADVERTISEMENTS.

On the Toning of Solio Paper.*

By J. B. B. Wellington.

I have thought that, instead of giving you a paper on the combined toning and fixing, it would be preferable to give you a few hints on the general toning of Solio paper, in the manufacture of which I am personally interested.

We have now arrived at that point where the new printing-out paper is no longer in the experimental stage. It is largely used by the best photographers both here and in America, and all speak in glowing terms of its superiority over albumen. This dear old friend albumen has had its death-bell tolled many a time before—certainly it has been the case every year during the last ten years—and yet it has lingered on, dying hard at the last. I think every one must see around them that albumen is giving place not only to the new printing-out papers, which must resemble it in appearance, but also platinotype, bromide, and kindred processes.

As this is to be a practical paper, I do not intend to dwell too much upon the *pros* and *cons* of the process. With this paper we have the greatest range of tones that the most fastidious can desire. Of course, as with albumen, it is of the first importance to have a good negative. Having secured this it is easy to secure a good print; but there is no doubt that with the new printing-out paper there is a far greater range to be obtained than with any other process. We have also at our command the capability of giving to our prints either a glazed or dead matt appearance with but very little trouble.

On the question of permanency there can be no doubt there is a greater chance of achieving this than with albumen, which we all know is so liable to go wrong; but to attain this, as with all photographic manipulations, it is necessary that due care be exercised with the various stages through which the print has of necessity to go. To say that a Solio print is absolutely permanent would be taking a great responsibility upon myself, for in this mortal world of ours anything on paper could not be so; however, I will say we can obtain a reasonably permanent result. The fading of prints is, I believe, more often caused through unsuitable mounts and bad mountants than through any inherent defects in the prints themselves.

As with all new processes, it is necessary that we take some trouble to understand the little peculiarities incidental to its working; and, when these are once mastered, you will be surprised at the simplicity of the whole thing. In the printing paper before us we have chloride of silver, in conjunction with a definite organic salt of silver, held in suspension in a vehicle composed mainly of gelatine, and this is coated on a paper with a baryta surface, which prevents it sinking into the fibres of the paper, and we have a more brilliant print, and the elimination of the hypo is more easily effected. To get even prints, and to prevent uneven toning, it is absolutely necessary that the paper should not be allowed to become damp before printing, and when separate toning and fixing baths are employed, care should be taken that the hands are not contaminated with hypo during the preliminary washing and toning, otherwise red stains will inevitably be the result.

As this paper is peculiarly susceptible to a diffused light, great care should be exercised in handling it in a very subdued light, both before insertion in the printing frame and during examination of the print, otherwise the high lights and purity of the resulting picture will soon be destroyed. It is not necessary to carry the prints to such a depth in printing as is the custom with albumenised paper, as the loss is not so great in the subsequent toning and fixing.

Now we come to the all-important question of toning. What bath shall we use? I think the first to engage our attention is the combined toning and fixing, about which there is such a divided opinion as to the permanency of the prints produced from it. There certainly is a distinct charm in the use of a combined toning and fixing bath, especially as no previous washing is required, the prints being taken direct from the printing frames and immersed in the one solution. There are amateurs who do not, and will not, use separate fixing and toning baths when there is one to be had that will do everything that is required in one bath. As long as too many prints are not toned in one bath, there is no danger of less permanency than with any other bath; but if the gold is exhausted, the toning proceeds with the lead, and probably sulphur also, in which case the prints *may* possibly change, but I do not think they would fade. The chances are that they may become darker, especially should there be any sulphur in the atmosphere, and I fancy there is a good deal in London. This will probably attack the lead, and form sulphide of lead. The opinion of any chemist here to-night on this matter would oblige. I have prints here which have been standing about on the mantelpiece of my sitting-room for over six months, and show no signs whatever of any change.

The formula recommended by the Eastman Company is as follows:—

Stock Solution No. 1.

Hypo	6 oz.
Potash alum	1½ „
Sodium sulphate (Glauber's salts)	4 „
Water, make up to	60 „

First dissolve the hypo and alum in the water, then add the sodium sulphate.

Stock Solution No. 2.

Gold chloride	15 gr.
Acetate of lead (sugar of lead)	50 „
Water	7½ oz.

Note.—An orange precipitate is formed in No. 2 solution, which, however, redissolves on its being added to the No. 1 solution.

To form a combined bath take of—

Stock solution No. 1	8 oz.
Stock solution No. 2	1 „

Do not use until the mixture has become quite clear.

In all solutions composed of hypo and alum it will be found that there is always a slight white precipitate. This, however, does not interfere with toning. This bath is very useful indeed for giving soft prints from hard negatives. It is not advisable to attempt to produce purple or black tones with this bath.

For those who prefer a separate toning and fixing bath, and one that will produce warm black tones, there is nothing better than the sulphocyanide bath. In order to have this bath under greater control, the addition of acetate of soda is of very great advantage; not only does it slow down the toning action, but the prints are not so liable to take that very objectionable blue surface tint which sulphocyanide, *per se*, is so apt to produce; the tones of the prints can be more closely watched. Where possible, it is certainly better to tone by daylight, rather than by artificial, as with the latter it is far more difficult to watch the various changes of tone. Of course it must be done in very subdued light. As I said before, no hypo must come anywhere near the prints during the toning, otherwise the prints will be irretrievably ruined with red stains that will refuse to tone.

Owing to the softening action of sulpho-cyanide on the prints, they should be washed in two changes of water, and then passed through a bath of alum water (alum half an ounce, water twenty ounces). After this they should be well washed in three changes of water, and then placed in the toning bath, as follows:—

Stock Solution A.

Sodium acetate	600 gr.
Water	20 oz.
Gold chloride	15 gr.

Stock Solution B.

Ammonia sulphocyanide	50 gr.
Water	20 oz.

For use, take of A two ounces, B two ounces, water four ounces. Allow to stand one hour before using.

The toning may be stopped at any stage by immersion in a bath of salt:—

Common salt	1 oz.
Water	32 oz.

Keep moving.

For securing still greater control and regularity of toning, it is advantageous to use two-thirds of an old bath and one third of a new one, omitting the water.

After removal from the salt bath, the prints should then be transferred to the fixing bath. This should not be made too strong.

Fixing Bath.

Sodium hyposulphite	3 oz.
Sodium sulphite...	1½ „
Water	20 „

The addition of sulphite is to preserve the purity of the tones.

There are some amateurs, in contradistinction to those who will have the greatest simplicity, who prefer formulæ of the greatest complication (take, for instance, some of the developing formulæ published), and it is for these that I bring forward the following not too complicated method of toning, in two toning baths, the second being a toning and fixing combined.

First tone very slightly indeed to a light brown in the following (the prints having been previously washed, as usual):—

Potassium chloro-platinite	5 gr.
Sodium chloride	40 „
Citric acid...	40 „
Water	20 oz.

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* Read before the Photographic Club.

and immediately transfer direct to the combined toning and fixing bath as first mentioned in my paper until the desired tone is obtained. This produces tones of a rich, warm black; but if purple tones are desired, tone first in the sulphocyanide, and then follow with the combined bath. Certainly the tones produced by it are very fine.

Where prints are desired of a nice sepia, tone a little deeper in the platinum bath, and fix as usual in the ordinary way. Care must be taken not to go beyond the brown stage. Prints produced in this platinum bath only are best finished off with a matt surface. As my paper is intended to be devoted to toning only, I will leave the subject of finishing, etc., to some other member to take up.

Round West London with Cycle and Camera.*

By Messrs. Stein and Varden.

In the annual report of last year an important item in the mind of the council of the West London Society was the formation of a cycling division. Sprung upon their society almost without their official consent by a few of the members joining themselves together to take part in the outings, it gave rise to various questions whether it would not lead to the formation of cliques, and thus damage the society as a body, whether the members of it would not (as some say they do) care more about the runs and their meals than the proper work of photography. So far, however, these fears have been groundless, for the members of it have shown that they are members of the West London first, and cyclists second, and if they are more careful in looking after the requirements of the inner man, the other members have benefited also, for they have chosen their tea places suitable to those members who ride Shanks's pony, and the conversation then has not been of the cyclists' all-absorbing topic, "wheels."

In coming before you to-night we hope to show you that the cyclist has many advantages, and trust that many will now, near the beginning of another season, join the ranks of the cycling division. The cyclist and photographer have many points in common; they are both bent (the amateurs at least) in extracting as much pleasure as they can from their hobby, they generally prefer to get away as far as they can from the beaten tracks and crowds to carry out the same; and here is the great advantage of the cyclist-photographer, for he can, without expense, leave the railways, with their crowd of pleasure-seekers, behind, and in quiet spots and restful places enjoy himself, the more so as the weight, and therefore the size of his camera, etc., is a matter of secondary importance, being carried by his machine instead of by himself.

It is a strange thought that though wheels have been used for nearly four thousand years to assist and expedite conveyance, the earliest suggestion for their application for personal use only dates back some two hundred years, and the practical use of them has only been for some twenty years, though bicycles and tricycles have been patented many times during the first half of the present century.

One point more before taking you on an imaginary tour, which could easily be accomplished in a day, being only some forty miles, is that some think and say that cyclists make a toil of pleasure; but they have either never tried the wheel, or else they have never mastered it, for, once the initial troubles are passed (*i.e.*, (1) the circular motion instead of the ordinary walking one, and (2) the anxiety of keeping one's balance), you move along at the rate of ten miles an hour, enjoying the country fresh air and sights with less exertion than the pedestrian, who is tramping at only three miles an hour even without a camera. But please note that we say move along enjoying, and on the outlook for nooks and corners to be perpetuated by the camera, not grinding our noses on the wheels and trying how much ground it is possible for us to cover.

And now, on starting, we may say that the views are not shown for their picturesque qualities, but because they are some of those places round about, beyond the reach of those who are confined to railway trains, places within a few miles, which might be, for their originality and quaintness, at least 1,000 miles from the great city, closing round them on all sides, embracing them with its railway arms and modern suburban jerry-built dwellings, leaving them for a short time longer (but oh, how short!) an oasis in the midst of brick and mortar.

We start, then, from this well-known centre of light, science, and photography, and pass through the ancient village of Acton—Oaktown of the Saxons, famous for its wells, and which must be one of the first places to be undertaken by the survey, for its ancient High Street, with its quaint houses, is about to be demolished and widened—on to Ealing and Hanwell—the scene of one of the West London outings—under the viaduct of the Great Western Railway, which may be noted as the first, or one of the first, places to carry that bugbear of the artistic photographer, a line of telegraph poles; passing on the right Hanwell Church, which is best seen at a distance, and of which there is nothing interesting to report, along the valley of the Brent to Perivale, a parish remarkable for its size, the inhabitants in 1881 numbering thirty-four souls, the church being suited to their number. In the church there is an ancient font (the cover is dated 1665), and a brass dated 1500. Retracing our steps, or rather our wheel prints, along the valley of the Brent, the scene of many skirmishes, both in the Wars of the Roses and also in the civil wars of Charles I., we come to Greenford, a very ancient place, with an old bridge called legally Greenford Magna, Perivale being Greenford Parva, though the present name appears in Domesday Book, and, leaving the "Load of Hay" on the left, we proceed up its steep street to the top of the hill. Here was the termination of the outing of the West London Society already referred to—at the "Red Lion," when the whole of the inhabitants of the village were called upon, not to meet and face the invading cameras, but unsuccessfully, we are sorry to confess, to provide eggs for the tea of the hungry members. We have said termination, but, to be more correct, that was only for the cyclists, for the other members had a long and weary tramp to the station before they could deposit their tired limbs in the train. Near this is the Church of the Holy Cross, which has been, unfortunately, lately restored, but which contains some ancient brasses, tombs, and windows. Resuming our wheels again, we soon cross the bridge over the canal, and arrive at Westend, where we would introduce you, in imagination at least, to another village "pub," with a curious hollow tree, and may also point out the utilitarian spirit of the age in reducing the ancestral bedsteads into very convenient if not comfortable settles. Having refreshed the innner man (with nothing stronger than shandygaff, though some of us have recollections of a very pleasant run here and the sweetness of chicken bones), we turn to the east and arrive at Northholt, the ancient Northala, with a curious church, which will well repay a visit, on a hillock; and turning again to the north we soon are climbing the steep ascent of Harrow with its church which is and has long been a landmark, giving, according to one authority, the place its name Hearge, being the Saxon for a troop or church. Much might be done both at Harrow and Pinner, but they are now easily accessible by rail; so, passing down into the valley, we come to Eastcot, and here is another old-fashioned "pub" called the "Case is Altered." It may be as well to point out, in case you think badly of the cyclists, that though we show many views of churches and "pubs" we do not enter the one for the good of our souls or the other for the good (or ill, as some say) of our bodies, but merely because they are both representative of the place and the life there. A little further on we come to Northwood, now much spoilt by modern suburban villas and the railway, though the road across the fields from Eastcot would, we feel sure, give much pleasure to many of us, and a discussion of photography on a style would not be forgotten. On alongside of the great Ruislip reservoir and through the woods, which provide occupation for the bulk of the inhabitants, and we are soon in Ruislip itself, beloved of artists, with fine church standing in the midst of almshouses, and its old moated farm, the property of Cambridge University since 1442. So secluded has Ruislip been that it is said a few years ago everyone you met there would answer to one of four surnames. In Domesday Book there is the following reference: "Ernulp de Hesding holds the manor of Rislippe, which is taxed at 30 hides. The land is twenty carucates—there are 11 carucates in demesne on which are 3 ploughs, the freemen and villans have 12 ploughs between them, and 5 more might be employed. The priest has half a hide—two villans hold a hide jointly. There are 17 villans who have a virgate each, 10 who have half a virgate, and 47 borders who have each 4 acres—4 foreigners hold 3 hides and a virgate. There is pasture for the cattle of the manor and a park for beasts of the forest—pannage there is for 1,500 hogs and 25 pence rents. The total value is £20 p.a., etc." Here we have some substantial refreshments at the "George," an old-fashioned inn which we can well recommend, and leaving it we pass a disused sawpit and bear for Ickenham, passing on our way many curious green lanes, which we find on enquiry are the old roads, now swampy and overgrown with grass and blackberries, by which the before-mentioned hogs were driven to fatten on the acorns of the forests. In the middle of the village of Ickenham is a curious well, which is modern, and a church similar to those at Northolt and Greenford, with its bells date 1582, so that could they speak they could tell us of good Queen Bess and the sturdy villagers gathering on the green ready to meet the troops of Spain. The next place we stop at is Hillingdon, where opposite the church is the "Red Lion," another old house which is famous for having entertained Charles I. after his escape from Oxford, possibly in this very room. Now on to Uxbridge, taking a look at the "Swan and Bottle," famous in the great Civil War, and so to Cowley; passing then West Drayton on the Great Western Railway, and coming to

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* Read before the West London Photo. Society.

Longford, we would introduce you to the oldest inhabitant, who has never left the village, and who has no desire to. On, past a pretty boat house and the famous tree-horse to Bedfont, with its two yew peacocks (having the date 1704 cut out below them), immortalised by Hood, rising in front of its quaint wooden-spired church, only if you desire to visit them you must be prepared to do without your tea, and we would advise you to choose a good day and be sure of your machines, for we have a vivid recollection of a breakdown, and a long weary tramp to Hounslow, some four miles through what in the north country would he called "haill water," *i.e.*, rain descending in sheets, while the lightning played now on one side and then on the other, showing us with every flash a straight mile of water through which we had to wade; and leaving Bedfont we again cross the Bath Road, meeting as we do so an object of terror to cyclists, a cart returning from market with the driver asleep, allowing the horse to use its own sweet will as to the road; and come to Harlington, near which is a pound and round-house (a lock up), in very good state of preservation. The church here is well worth a visit and the exposure of a good many plates, but hurrying on we pass the wall built by Lord Uxbridge, nearly a mile long, round Dawley House, to keep out the smallpox, and arrive at Hayes, the ancient Haisa, property of the Archbishops of Canterbury from the time of the Saxons till the beginning of the present century. In 830 it belonged to Walherdus, whose successor, the last Saxon Archbishop, Stigand, crowned King Harold. In the church is a curious old stone of St. Christopher carrying Christ through the water, with a crab, an eel, fish, and mermaid below, and a figure fishing above. But if we are to finish our journey in daylight we must push on through the water-splash, which we see is too deep, though we have been through it before and found the water very cold and up to our knees, and so taking the second branch, which is much shallower, we meet lying by the roadside a veteran who has dined not wisely but too well, of whom we take a snap-shot, and soon are at Heston, with its old houses and church tower, to which a new church has been attached, the clock of which warns us to make haste. This district is noted as having been ordered to supply the royal household with bread by Queen Elizabeth, probably on account of the fine quality of wheat grown here. Passing the church on the left, we wheel along through Osterley, with its records of good Queen Bess, through Spring Grove and Isleworth, with its great soap works, on to Zion House gateway, with a replica of the celebrated lion which once stood on Northumberland House, Trafalgar Square, and which is now in front of the house itself, at which many a countryman stood looking to see it wag its tail when it heard big Ben strike one. On to Brentford with the entrance to the Grand Junction Canal, turning along which we have a glance at the scene of another of our outings, Boston Road, and running through some lanes come to Kew Bridge and Strand on the Green, near which lies the state barge of the City, the *Maria Wood*, and taking another view, we pass Devonshire House and come to Chiswick Church, in the churchyard of which is the tomb of Hogarth. Past Chiswick Eyot on to the Mall, Hammersmith, and then to the bridge, and soon, turning into King Street, we crawl at first, owing to the crowd, but at a better speed afterwards we come to Young's Corner and the Goldhawk Road, and at the corner of Stamford Brook Green we would bid you good-night.

Our journey is done, but you will please note that we have only taken the centre of the district and that both on the south and the north there are similar runs to be enjoyed—for instance, on the south to Esher, Weybridge, Ripley, Virginia Water, and Windsor Great Park, and on the north to Kingsbury, Roe Green, Preston Green, Stanmore, and Whitchurch, with its tombstone of the harmonious blacksmith.

On Choosing a Hand-Camera.

By G. C.

A sprinkling of green on the country hedgerows, an early primrose or two starring the sheltered bank, remind us that, in the words of the old plain song, "summer is i-cumen in," and that the voice of the amateur will soon once more be heard in the land—especially when he is exactly fifteen miles as the crow flies from the nearest photographic depot, and discovers that his focussing-screen is broken, that he has brought out the wrong set of stops, and that his tripod-screw has elected to remain at the base of operations.

Now is the time to consider whether any additions to our outfit are necessary, so that, when the long, sunny days begin, we shall be able to take the field at once.

There must be many brother amateurs who, at this season, are considering whether they shall make a serious attempt to master the difficulties attendant on the first use of that tricksy elf, the hand-camera. That the hand-camera *is* harder to use successfully than the tripod camera I readily acknowledge, but that, as some would have us believe, it is a more or less costly toy, incapable of satisfactory work, I utterly and entirely deny. Of course, to start photography with a hand-camera, without any previous knowledge of the subject, would be enough to make the most patient amateur that ever misused the blessed sunlight give up our science in disgust, and renounce Britannia and all its works. But I address this article to those who have had sufficient experience with their half-plate or whole-plate cameras to enable them to produce a decent negative.

First and foremost comes the cost. Any amateur who has glanced through a few catalogues will have noticed the large number of hand-cameras on the market, at prices ranging from about £1 10s. to £3; most of them being automatic changers. Now, these hand-cameras, at a medium price, which seem to be so popular, are no doubt excellent in their way. But you cannot expect everything good for £3. If the automatic plate-changing mechanism is well made—and a carelessly-constructed automatic changer is really too awful to think of, when we all know how even the best and most expensive occasionally go wrong—it is obvious that the lens and shutter must be inferior. It is decidedly the safest plan, if we cannot spend more than £3 or £4, to get a perfectly simple camera. The next price is from, say, £6 to £8, and for this price we shall find that we can get a really high-class instrument, with a good lens and shutter, and capable of satisfactory work. At the same time the simpler the camera the better chance of its details being carefully constructed.

Last come the very expensive ones—the big guns—the 15 to 20 pounders. Now, there are very few of us who can afford to pay such a high price, and I feel a certain delicacy in addressing and advising millionaires. But supposing any one *is* determined to "plunge," let him consider if it is really worth the money. Be the plate-changing arrangement never so cunningly constructed, there is always a chance, though it may be a small one, of its "going wrong." That carefully-tempered spring *may* weaken, that polished knob, which charmed you so much in the catalogue diagram, where, as you remember, it was ominously marked with a big, big D, *may* fail to change the plate.

I have left the very cheapest to the last, for I do not think any amateur who gives the matter a moment's consideration will be lured into buying one. Of course, they will do work of a sort, in experienced hands. But when you consider that a decent 5 by 4 R. R. costs, say, £1, that the cheapest quarter-plate shutter costs about 5s, how can you expect to get a whole outfit for 10s. 6d. or a guinea? A hand-camera to be worth anything must have a good lens and shutter, the strain on both being so much greater.

To deal with every pattern at length would take up too much space, unless the Editor is inclined to allow me the run of the entire Amateur Photographer for the next year or so, so I give the following points for a buyer's guidance:—

(1) Get as simple a camera as possible; the more movements it has the greater opportunity there is for going wrong.

(2) Do not spoil the ship for a ha'porth of tar—give as much as you can afford. It pays in the end.

(3) Remember that an automatic changer is always liable to fail.

(4) Do not invest in some preposterous instrument professing to do everything and about as bulky and as complicated as the Bill for the Better Government of Ireland.

(5) Remember that a fixed-focus lens means a very short-focus lens, which, except for architecture, a branch of photography that is never, under ordinary circumstances, undertaken by a hand-camera, is practically useless.

(6) Do not try to get a hand-camera which will do for any class of work. A hand-camera should be used for snap-shot work pure and simple. Time exposures should be made with your ordinary stand-camera.

(7) Do not believe too implicitly in the catalogue description.—get the opinion of some reliable man.

(8) Remember that a twin-lens finder is, *ipso facto*, twice the size and cost of a single-lens camera.

(9) A swing-back on a hand-camera is useless. A rising front is not much better.

A Useful Dodge for Aristotype Printers. – Users of aristotype paper are very often annoyed by some of the paper sticking to the negative. To get over this difficulty without injuring the negative, immerse the negative in a hypo solution, and leave it there till the brown spots or streaks caused by the paper have disappeared. Then take the negative from the hypo bath and wash thoroughly by laying the negative in clean water with frequent changes. Do not allow the water to run on the negative, as it would remove the retouching. When the hypo has been wholly eliminated the negative can be dried in the usual manner, and it will be found that the retouching has not been marred. — *American "Photographic Times" Annual.*

The A B C of the Lantern.

Chimney.—The function of the chimney in an optical lantern is a two-fold one: it carries off the heated air from the interior of the body and ensures ventilation, and, when a lamp is the radiant employed, helps to support combustion. In lanterns of the phantasmagoria type, in which lamps burning sperm oil are used, the chimney forms part of the body itself, and is invariably long and cowl-shaped at the top to prevent the egress of light. In the modern lantern burning paraffin oil, the chimney is attached to the lamp and not to the body; it is generally constructed in two or more sections telescoping one into the other, so that its height may be adjusted and portability ensured. The efficiency of a paraffin lamp is largely dependent upon the proper adjustment of the chimney, which fact has been recognised by Mr. Stocks, who has recently introduced a lamp in which the chimney is provided with a rackwork movement, by which it may be readily adjusted to any height whilst the lamp is burning. When the limelight is used the necessity for a long chimney is no longer apparent, a short flat top, or a dwarf cowl, being all that is necessary to afford ventilation and exclude light.

Cleaning Lenses.—The glass employed in the construction of lenses being highly polished, and consequently liable to become scratched if unsuitable material, such as cotton, be used to clean them, a piece of clean, soft chamois leather should be reserved for the special purpose. In the case of a portrait combination, a form of lens still largely used for optical projection, it will seldom be necessary to unscrew the combinations in order to clean them, but when it becomes so, care must be taken to replace the glasses exactly as before, or the proper performance of the lens will be interfered with. If the surfaces are very dirty, they should first be slightly brushed with a soft camel's-hair brush to remove dust or any dirt of a possibly gritty character, which if rubbed off with the leather would result in scratching the surface; cleaning may then be effected by slightly breathing on the lens, and gently polishing with the leather, which, in order to avoid grease, should be kept by itself, and not packed loose with other accessories. Glass cleaning or polishing solutions, whiting, or powder of any description must on no account be employed. Sometimes the Canada balsam used to cement the component parts of a lens starts, to use a technical term, and causes the inner surfaces to become cloudy and obscured. In such a case the lens should be sent to an optician, who, for a small outlay, will clean and reset the glasses.

Clouds.—Slides produced from shutter-exposed negatives of cloud effects form very beautiful subjects for projection. A suitable sky is a great improvement to any landscape, and all high-class slides are now provided with clouds by a process known as "double or combination printing." The method will be found fully described under "Printing in Skies."

Collodio-Bromide Process.—By this process slides of the highest quality may be produced. It is not, however, a very easy one to work. Emulsion prepared ready for coating the plates may be obtained from Mr. Brooks, of Reigate; and Messrs. Rouch and Co., Strand, sell plates coated and ready for exposure. Those whose knowledge of photography is restricted to the use of gelatine plates would do well to make their first experiments with collodion plates obtained from either of the above sources. For the benefit of those who may prefer to prepare their own plates, a brief *resumé* of the process is given. A plain collodion is made by dissolving 36 gr. of high temperature pyroxline in alcohol ·820 2 oz., ether ·720 $3\frac{1}{4}$ oz. When dissolved, the plain collodion is bromised by adding 60 gr. of bromide of zinc. To make the emulsion, dissolve 90 gr. of nitrate of silver in the *smallest possible quantity of distilled water that will effect solution.* In a clean test-tube boil 6 drm. of alcohol, and add to the silver. Take 5 oz. of the bromised collodion, and by non-actinic light pour the silver drop by drop into it, stirring vigorously and shaking the bottle at frequent intervals. This forms the emulsion, and may be used either washed or unwashed. The latter is the simpler method for a beginner to adopt, but in either case the emulsion must, after having been well and continuously shaken for at least five minutes, be put aside for at least a day and night to ripen. At the expiration of that time, the plates, which should have been previously cleaned and edged with india-rubber varnish, may be coated. This operation is performed in the same manner as in the wet process, but each plate when coated is placed in a dish of distilled water in order to remove the soluble salts from the film; they are then transferred to a dish containing a preservative prepared by dissolving 10 gr. of pyro in half a pint of flat bitter ale. When dry the plates will be ready for exposure, and although they will keep fairly well, are best used fresh. Instead of washing each plate after coating as above, the emulsion itself may be washed to free it from the soluble salts. This is effected by pouring it out in a dish, and allowing the solvents to evaporate. When this occurs the mass of emulsion is broken up with a silver fork, placed in a muslin bag, and washed in frequent changes of water for several hours. It is then immersed in alcohol to assist in extracting the water, and to hasten the drying. The pellicle, as the emulsion is now called, will keep in its dry state for a very long time, and, when plates are required, about 25 gr. are dissolved in alcohol $\frac{1}{2}$ oz., ether $\frac{1}{2}$ oz. The plates are coated as before, but require neither washing nor the application of a preservative. The foregoing formula is due to Mr. W. B. Bolton, to whom, in conjunction with Mr. Sayce, photographers are indebted for one of the most beautiful of all photographic processes. The development of the plate is the same whether the emulsion be used washed or unwashed, only in the latter case the preservative must be got rid of by a preliminary washing of the plate under the tap prior to development. The following solutions will be required for development:—No. 1: pyrogallic acid, 100 gr.; alcohol, 1 oz. No. 2: bromide of potash, 25 gr.; water, 2 oz. No. 3: carbonate of ammonia, 60 gr.; water, 1 oz. To develop, mix in a clean developing cup, 30 minims No. 1, 60 minims No. 2, and 2 drm. of No. 3. Hold the plate by one corner, flood the plate with the developer as in the wet process, rocking it gently so as to cause the solution to flow evenly over its surface. When the image is fully out, wash and fix in an ordinary hypo bath. The plates are very slow, requiring with ordinary negatives of average density about one minute's exposure at one foot from an ordinary batswing gas burner. They may be used for reducing, but the exposure will be long. The above is a very brief outline of the process, but fuller working details will be found in Abney's "Photography with Emulsions," and other works dealing with the older processes. The special characteristics of properly made dry collodion slides are the exquisite transparency of the shadows, and the beautiful warm tones obtainable; the purity of the high lights is also noticeable. The process is one well worthy of the attention of those who seek to obtain slides of the highest quality.

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Cornish Camer Club.—On the 6th inst., Mr. H. Tonkin, Hon. Sec., gave a demonstration of the Paget Print-out Lantern Plates. The results were much liked by the members.

Psychic Photography.

In our issue of February 17th, page 106, we referred to having seen some negatives of ghosts, and said, "We must not say any more, as possibly the photographic world may yet hear of this matter elsewhere." On the 9th inst. at the London and Provincial Photographic Association, Mr. J. Traill Taylor, Editor of the *British Journal of Photography,* recounted his experiences as an investigator into the above subject. These we will briefly summarise, prefacing our notes by saying that, no matter what we may now record, no matter what aspersions on the honesty of certain individuals we may cast, we at once acquit Mr. Traill Taylor of any intention to deceive or dupe the photographic world. He has been the dupe, and we hope will not as well be the pigeon to be plucked. Mr. Taylor's attitude has been that of an investigator with every wish and endeavour to get at the truth, and it must be admitted that it required no little courage for a man of his standing to appear as the exponent of psychic or ghost photography.

Mr. Taylor was invited to go to a certain gentleman's house, and take with him his own camera, plates, etc., and photograph two gentlemen, in order that it might be proved that psychic photographs could be obtained Ordinary dry plates of a well-known brand, Ilford, were bought at a dealer's in the ordinary way; these plates were not unsealed except by Mr. Taylor, who, using a stereoscopic camera, filled the dark slides which never left his possession till the plates had been exposed and taken out and developed, when "ghosts," or "spooks," appeared on the negatives, and indeed on each half of the stereoscopic negatives. During all these experiments, and numerous negatives were obtained, a man who is described as the medium was present in the room. Mr. Taylor avers that so far as he could see there was absolutely nothing abnormal about the room at any time, and some exposures were made by daylight and some by magnesium.

The feeling of those who saw the lantern slides shown by Mr. Taylor, certainly was that somehow the ghosts were produced on the negatives by copying old photographs, or had been cut out from old prints, and to us they had the same appearance; there was a distinctly marked outline in most of them. Yet Mr. Taylor said he could see nothing but the sitters in every case. We would particularly note, moreover, that Mr. Taylor had made prints from the stereoscopic negatives, and had examined the same in the stereoscope, and that, whereas his material sitters possessed length, breadth, and depth, that is to say, solidity, his spiritual sitters possessed length and breadth only, but no depth, a still further proof that they were "projections from a plane surface."

Of course several members of the L. and P. had something to say, and ultra-violet rays, fluorescent bodies, mirrors, and all sorts of things were suggested as the possible causes. There were several visitors present, who, though not photographers, knew all about "psychic photography," and one in particular, who exhibited lantern slides produced from negatives taken by, or in the studio of, a Mr. Hudson, a photographer of Holloway Road, who explained these "spooks" as "the concrete projections from the mind of the medium." Now Mr. Taylor had said that he asked the medium what he was thinking about at that particular time, and he said, "I was wondering whether I should get a corner seat in a smoking carriage to Glasgow." Thus far we have established two facts: first, that for the success of the experiment it was essential that the medium should be present; second, that the medium was going to Glasgow, where it was afterwards also stated, both by Mr. Taylor and a visitor, the medium resided. One other fact we wish to establish, and all present at that meeting will bear us out in this, and that was that the medium was referred to by Mr. Taylor as Mr. D.

Now let us see how far the conditions and environments of the experiment were such as to warrant any inquiry into the matter. In the first place we have admitted the good faith of Mr. Taylor, and as to the careful manipulation of the ordinary operations of photography, we may rest content to leave the matter in his hands. The two sitters, in our own opinion—which is formed on statements we are not at liberty to divulge—we consider as honest and trustworthy. The lady of the house was present, but at quite the other end of the room, we believe. We must not forget the all-important medium. The camera was placed in a conservatory the sitters in the doorway leading into the room, and the room was darkened by the blinds being drawn down. This we must confess does not satisfy us, and is, we consider, a weak point, at which trickery and chicanery may come in.

So far we have presented our readers with a brief outline of the conditions of the experiment, and we leave them to form their own opinions, and we can only lay also the following facts before them.

It is by no means the first time that ghost photography has claimed Mr. Traill Taylor's attention. He was engaged in investigating this subject when Mr. Hudson, of Holloway Road, was the photographer who made the negatives, and notes on the subject appeared in the *British Journal of Photography* in June, 1873. Nor is it the first time that the medium has been engaged in the same style of thing, for in 1876 was published a work entitled "Hafed, Prince of Persia: his Experiences in Earth-life and Spirit-life, being Spirit Communications received through Mr. David Duguid, the Glasgow Trance-painting Medium." Mr. Duguid began this work as a medium, it seems, about 1865, and in the course of the delivery of the above-named book, direct drawings were made; in fact, we are told in the introduction that "the pictorial illustrations in this volume are the direct work of the spirit artist," yet it is also stated that "on looking over 'Cassell's Art Treasures Exhibitor,' at page 301, he found an engraving entitled 'The Waterfall,' by Jacob Ruisdal, acknowledged to be his *chef d'œuvre.* On comparing the engraving with the picture, it was found to resemble it so closely as to be almost a facsimile." Further than that, in part of the edition of Hafed appears the following notice:—

> "The publisher begs to say that his attention has been called by Messrs. Cassell, Petter, and Galpin, publishers of the widely-known Illustrated Family Bible, to what they consider an infringement of their copyright, inasmuch as the direct pictures facing pages 33, 81, 113, 193, 385, 465, and 563 have 'been copied, more or less literally,' from engravings contained in their Bible. On examination the similarity cannot be denied. The publisher has expressed his regret to Messrs. Cassell, Petter, and Galpin, who have kindly consented to allow the seven pictures above mentioned to appear in the remainder of the present edition on condition of the insertion of this notice. Explanation of their being here at all must be sought in the work itself. The fact that these pictures as set forth in the *Introduction* are the work of no mortal hand is attested by respectable witnesses, whose names are given in the Appendix. That this testimony is unshaken and unshakable the publisher is persuaded, and the singular discovery in question only adds, in his opinion, a fresh complication to an already overwhelming mystery.—Glasgow, 23rd February, 1876."

Certainly, to us, the publisher's assumption in the last sentence of the above extract is not satisfactory Further than this, we have information, proof of which we shall advance next week, that Mr. David Duguid was in the employ of Mr. Bowman, a photographer, and was himself afterwards a professional photographer at the corner of Sauchiehall Street.

We ask, in the face of these statements, can we rely upon any work in which Mr. David Duguid is the medium?

The only work on the subject is "The Chronicles of Spirit Photography," by Miss Houghton, published by E. W. Allen, Ave Maria Lane, E.C., price 10s. 6d.

Exhibitions.

Society.	Entries close.	Opens.	Closes.	Address of Secretary.
Manchester Amateur Photographic Society	—	Mar. 21	Mar. 25	
Croydon Camera Club ...	—	April 5	April 8	T. D. Aldous, 37, St. Peter's Road, Croydon.
National Photographic Exhibition, Crystal Palace ..	—	April 10	April 29	
Bolton Photographic Society	—	April 12	April 15	
Philadelphia (U.S.A.) Phot Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.
National Sportsman's Exhibition (Photo. Apparatus Section).	—	April 24	May 6	Royal Aquarium, Westminster.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B.

Societies' Notes.

THE Morley and District Photographic Society has been re-established under the name of the Morley Amateur Photographic and Lantern Society, and the following officers have been elected:—President, Mr. S. Atkinson; Vice-Presidents, Alderman W. Holton, J.P., Councillor S. Rhodes, J.P., Councillor C. Scarth, J.P., Councillor H. Smith, Mr. R. B. Hopkins (Town Clerk), and Mr. J. Wilson; Vice-Chairman, Mr. Ward Brook; Hon. Secretary and Treasurer, Mr. Albert Marshall, Brunswick Street, Morley. The society held their first lantern exhibition on 6th inst., when there was a large audience. Mr. Hopkins took the chair, and Mr. Atkinson worked the lantern. The exhibition consisted of work done by members, and was highly appreciated by those present.

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AT the annual meeting of the Louth Photographic Society the report was very satisfactory. The membership is now eighty-one, out of which no less than twenty-six are ladies. The following were the officers elected:—President, Rev. J. M. Coates; Treasurer, H. S. Forman; Hon. Secretary, S. F. Clarke; Assistant Hon. Secretary, H. C. Bentley; Committee, Messrs. Clarence, James, Fowler, Shephard, Ranshaw, Ingoldby, and Plasket.

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THE Llandudno Camera Club have secured convenient premises, which are very central, near the post-office, and we expect they will be a great boon to the large number of amateurs who yearly visit this "queen of Welsh watering-places."

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THE Postal Photographic Club, under the secretaryship of Mr. R. A. R. Pennett, has started a "debating society," the discussions of which are carried on in the "Club Note-book." In the last circulation the motion was: "That, in the opinion of this Society, medals ought not to be awarded in any exhibition to exhibitors who have previously taken first-class medals at other exhibitions, except in a champion class." Mr. W. H. Banks moved, as an amendment, "That no picture be allowed to take more than one award, and that lantern slides be simply considered as a printing process." The result of the voting was, for the motion, three members; for the amendment, seven members. The amendment was, therefore, carried.

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CROYDON CAMERA CLUB ANNUAL DINNER.—The above was held at the Greyhound Hotel, on 8th inst., the President being in the chair, when a considerable proportion of the members gathered round the festive board to enjoy not only the gastronomic delights provided, but also the oratory and music, both of which there was good store of. Allusion was made to the forthcoming exhibition, to be held at the Braithwaite Hall, and over seventy tickets were taken by those present.

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THE FORFARSHIRE PHOTO EXHIBITION.—The Committee of the Photo-mechanical Section offer the Forfarshire medal for the best pictures in collotype, photogravure, and photo-engraving.

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THE Bolton Photographic Society will pay carriage on all exhibits sent in for their champion class.

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THE Leamington Amateur Photographic Society now meets in the Pump Room.

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A PHOTOGRAPHIC and microscopical section has been formed in connection with the Great Eastern Mechanics' Institute, David Street, Stratford, E. The next meeting will be held at above address at 7.45 p.m. on 21st inst. Mr. F. Ritcher is the Hon. Secretary, who will be pleased to give all information.

Societies' Meetings.

Aston.—On March 9th Mr. C. T. Cox, head-master at the Birmingham School of Landscape Art, delivered a lecture on "Light, Shade, and Picture Composition" to the members and friends of the above society. In his opening remarks he said he knew that much unkindness existed between devotees of the camera and lovers of the brush, and that many of the latter always tried to depreciate work of the former, and before commencing his lecture he should like to say that he was no party to such feeling; in fact, he considered the photographer equal to the artist, however high, and that in many cases the camera could produce effects that would otherwise be beyond the skill of an artist to obtain. In short, he thought the two should work together. He then dealt with laws relating to chiaroscuro, and showed in many ways how the laws relating to art were equally applicable to photography, and how the violation of such laws led to failure. The members present were here asked to take down the nine rules governing the proper representation of a picture as follows:—(1) Principality, (2) repetition, (3) continuity, (4) curvature, (5) interchange, (6) contrast, (7) radiation, (8) consistency, (9) harmony. After explaining the first principle, he showed by means of specimens how far the law of repetition was carried out in the works of Rembrandt, Turner, Edward Watson, and others, how the chief image was again represented by a similar but minor study, not competing with the chief object of interest, but only repeating it. Then again, continuity, as in the case of the outlines of mountains, pillars, trees, etc., would also be seen, not competing with repetition, but only repeating it. The speaker here asked, who had not noticed the graceful curves of motion of the human figure, the exquisite curvature of the movements of body, the dainty toss of the head? And from these he went to those of Cader and Snowdon, and pointed out that the whole of nature presented these curves to the users of those valuable twin lenses, the eyes. He had seen and painted old Welsh cottages whose chronic curvature of the backbone of the roof and tumbledown gables lent a charm to the whole scene. Contrast and interchange were then fully dealt with, effects in the former being chiefly obtainable in April, when days of tender light and soft flickering shade were always present; and here the lecturer showed how the general rule of contrast was laid down in the works of Ruskin, viz., "The shadow thrown was always deeper than the shaded side of the object throwing the shadow." Again, most of the famous works of Claude Lorraine were based upon the division of his canvas diagonally into light and shade, with an interchange of both from one to the other, and the larger the picture the greater were the half tones of each introduced. Ruskin asserted that the shadows in photography always appeared three times as dark as they were in nature, but the lecturer said he had adjudicated in photographic exhibitions in which he had seen shadows depicted far truer to nature than could have been portrayed by the brush, owing to their transient character. Relating to consistency, Mr. Cox asked, who would think that "a lovely sylvan scene—a poem without words, one that draws out the soul and appeals for response to everything that is beautiful in the mind," would be consistently represented in a thunderstorm? He said that "rocky crags and frowning dark ravines" would be more consistent with the battle of the elements. Radiation and harmony were next dealt with, and herein he advised that photographers should follow the lines of the old masters and obtain an oval character for their views, although this was often exaggerated, as in the works of Bonnington, one of which was shown in which the clouds appeared as if placed in order to fulfil the ovality, as it were. He said if the camera screen were divided medially through the sides, and an ellipse sketched round the points of contact, we should have a guide to good picture making, if we avoided placing objects of interest in the corners or on the margin of the diagram. He (the speaker) concluded with some remarks on clouds—those things which bothered photographers, and more especially artists, but things which were invaluable to the production of a good view. Finally he was pleased that Aston had formed a photographic society. He wished them every success, and offered to give advice gratis to any member at any time that they may feel they would like to have his opinion or criticism. On taking his seat, the lecturer was warmly applauded, and an examination of some of the beautiful illustrations brought by Mr. Cox, Mr. Cracroft, and Mr. Flamank concluded a most instructive meeting.

Birkenhead.—The usual monthly meeting was held on 9th inst. Dr. W. H. Hunt in the chair. Mr. W. H. Tomkinson gave an elementary but interesting lecture on "Lenses," illustrated by apparatus supplied by Messrs. Taylor, Taylor, and Hobson, and others. The lantern was used for the last time this season, and members availed themselves of the opportunity of testing their slides.

Birmingham (Photographers' Union).—Meeting was held on 8th inst., Mr. W. P. H. Foster (Vice-President) in the chair. Three candidates were elected members of the society, which is increasing considerably and making rapid strides. Several questions were discussed from question-box affording much information. There was members' exhibition of work to conclude the meeting.

Crewe.—The 1st inst. was a very grand night. The members, together with about a hundred friends, met for the last society night in the Lecture Hall, Brown Street, Rev. Dr. Rainsford in the chair. The evening was mainly taken up with lantern slides and the Amateur Photographer Prize Slides. They were for the most part very heartily appreciated, and many received cheers as they were shown. On the whole, they were considered better than last year, especially the architecture and portrait work. Thanks were very warmly passed to the Editor for the treat enjoyed that night, in the loan and pleasure of the slides. The Chairman, on behalf of the society, as President, spoke as to the quality and merit of the slides, being ideals for all to work up too, and to endeavour and enter such competitions as aids to improvement and success. The slides were fully explained and described by Mr. T. Gorrell, Hon. Secretary of the society; while Mr. A. H. Badger kindly manipulated the lantern, being his own for the night.

Croydon (Micro.)—On the 3rd inst. "A Chat on Lenses," by W. Low-Sargeant. The chair was taken by Mr. J. J. Sandells. After a brief explanation of the elementary laws of optics, Mr. Sargeant described the properties of the six varieties of lenses, and also of a seventh, called a "crossed lens" (a double convex lens, having its two curved surfaces of different radii). In photography the use of a lens composed of a single element was attended with two great disadvantages, viz., chromatic aberration, or the non-coincidence of the visual with the chemical focus shown by a want of definition in the photograph, and spherical aberration, producing a similar result owing to the rays of light passing through the margins of the lens intersecting at different points instead of at one and the same point. The first-named was corrected by the addition of another element with a different refractive index (crown and flint glass were the two elements commonly used), and the latter by the addition of a second lens reversed to correct the aberration of the first, as in a rectilinear combination, or it could be practically eliminated in the single or landscape lens by using a diaphragm of relatively small size compared with the diameter of the lens. The purpose and uses of the stops were then explained. With a single lens, owing to the office performed by the stops, it was advisable to focus with the same stop it was proposed to use in exposing. The focal length of a lens was measured from its optical centre—the position of which in the several forms of lenses was shown by diagrams. To find the focal length of a lens—information often desired for various purposes—several methods of obtaining an approximately correct result were given. Focus a distant object in the camera, and the distance between the screen and the optical centre of the lens would be roughly the focal length; or focus some object, getting the image the same size, and the distance between the screen and the object would be about *four* times the focal length. The comparative advantages of the use of long and short focus lenses were then discussed. A long-focus lens was most suited for ordinary outdoor work, as the natural proportions between near and distant object were better preserved in the photographs taken with it. The chat was illustrated by a large number of diagrams, and was listened to with much attention by the members. The questions which were afterwards discussed showed that they had been enlightened on many hazy points, and would, consequently, be enabled in the future to use their lenses to better advantage.

Croydon (Camera Club).—On 27th ult., lantern night, slides shown lent by Editor, *Hand Camera and Lantern Review*, also views of Palmyra and Baalbec, besides a fine set of six snap-shots by Mr. A. W. Hirst of a man in the several attitudes of jumping over a bar. A large collection of hand-camera prints were also displayed on the staging. The judges appointed for the forthcoming exhibition are Lieut.-Colonel J. Gale and Mr. J. T. Bright.

Durham.—At a well-attended meeting held on 8th inst., the Hon. Sec., Mr. Robert Hauxwell, gave an interesting demonstration on enlarging by means of "Cresco-Fylma." The demonstrator successfully stripped several lantern slides enlarged to 5 by 4 and floated on to opal, also quarter-plate negatives to half-plate, and so on.

Fairfield (Camera Club). — A meeting was held on the 7th inst.; the President, Mr. Mallabar, in the chair. There was a large number of members and friends present. The subject for the evening's demonstration was the new developer, "Amidol," by Mr. L. E. Morgan (representative of Messrs. Fuerst Bros., London). In bringing "Amidol" before the club, Mr. Morgan explained the advantages of this new chemical, it being very clean to work with, very powerful, rapid, and easy of manipulation. An additional advantage is that it is a one-solution developer. He then proceeded to develop a plate, bromide print, and lantern slide with it, with most satisfactory results.

Gosport.—A well-attended meeting was held on the 7th inst., when Mr. R. E. Froude, Vice-President, occupied the chair. Mr. T. Williams, R.N., gave a very able and instructive demonstration on bromide enlarging. Three exposures were made, and the resultant pictures, enlarged about nine times, were highly satisfactory. The membership of the society is steadily increasing, and intending members would do well to send in their names without delay to Mr. S. W. F. Morish, the Hon. Sec, at 46, High Street, Gosport.

Hackney.—Ordinary meeting, 7th inst., Mr. S. H. Barton in the chair. Nomination read of Mr. B. K. Gillon. The library was augmented by about a dozen more new books. Mr. J. O. Grant recommended that the Society exhibits at the forthcoming Crystal Palace Exhibition, and, after it was carried, he said the committee would draw up and send a circular to all members. Mr. Beckett stated the committee had decided on purchasing two 9 in. lenses by Swift, for the new lantern. Mr. Houghton presented the Society with a new form of carrier for the lantern. Members' work was then shown by Messrs. Cross, Sodeau (Arachnidus ornatus, photo-micrograph); Hudson, lantern slides; Roder, two slides developed with amidol. Mr. Gosling asked how many sheets of tissue paper were necessary to reduce or enlarge (by diffusion of light) in sunlight. It was stated that it would depend on light; in any case the paper must be put out of focus. Mr. Brooker (of Hastings) then gave a first-rate lecture on Winchelsea and Rye, illustrated by the lantern. Much care had been bestowed by Mr. Brooker on it, as it was very instructive and interesting to all; and that the slides were good goes without saying. Whilst the scientific side was treated upon, likewise the historic, the art side of photography was certainly to the fore, and a great treat was given to the Society. Mr. Brooker must be complimented on the fine quality of his slides.

Leeds (Y.M.C.A.)—On 10th inst. Mr. J. A. Noble gave an instructive account of photo-mechanical printing processes. He exhibited several blocks used in the various methods of reproduction, and handed illustrations of zincography and collotype printing round for inspection, briefly giving the history of the rise and development of this valuable and useful purpose to which the art of photography could be put.

Liverpool (A.P.A.).—On 9th inst. Mr. J. Sheard delivered his new lecture on "Our Members of Parliament, and something about some of them," illustrated by lime-light portraits of present members of the House of Commons. The lecturer dealt in a racy manner with the personal reminiscences and peculiarities of about fifty members, and exhibited about 300 portraits, together with a reproduction of a number of life-like silhouettes. Mr. G. B. Newton presided.

Liverpool (Camera Club).—A meeting was held on 8th inst., Mr. J. Hawkins, the President, in the chair. The feature of the evening was a demonstration on Amidol, by Mr. Morgan, representative of Messrs. Fuerst Brothers, London. The prizes for the year's competition were presented by the Vice-President, Mr. A. C. Yule, as follows: Club prizes, Mr. J. Smith, gold medal for landscapes and portraiture; Mr. J. Hawkins, two silver medals for landcapes, portraiture, and enlargements Mr. W. A. Stuart, bronze medal for enlargements. Special prizes—lantern slides, Mr. Ellis first, Mr. J. Smith second. Pictures taken at club outings—Mr. J. Smith first, Mr. W. Tansley second.

Llandudno.—On 7th inst. the club had a lantern night, when 100 of the Cheltenham club slides were shown.

North London.—On the 7th inst., Mr. G. J. Clarke in the chair, Mr. A. E. Smith gave a demonstration of the photo-lithographic process. Explaining the necessity of a previous knowledge of carbon printing, he first developed a carbon print by single transfer. Some prints on bichromated gelatine films from wet collodion negatives were then coated with photo transfer ink, soaked in water for a few minutes to soften the film where the light had not acted. The ink on the soluble part of the film was then cleared away, leaving the printed image ready for transfer to the stone, and the transfer thereof and method of printing were then explained. At the next meeting, at Canonbury Tower on the 21st inst., a lantern entertainment will be given in the reading room.

Oxford University.—At a general meeting on 6th inst., the following were elected officers for next term:—J. Walker, Esq., re-elected Hon. Treasurer; A. Eglington, Lincoln, re-elected Hon. Sec.; H. Graves, Balliol, was elected to the vacant place on the committee.

Preston.—The annual meeting was held on the 9th inst., Colonel Oliver, President, in the chair. The secretary's report and balance-sheet showed a satisfactory state of affairs for a society not yet two years old. It was decided to affiliate with the Photographic Society of Great Britain, in order to be able to procure the members technical instruction of a class superior to any that can be locally obtained, and at the same time to keep in touch with the chief centre of photographic activity. Colonel Oliver was unanimously re-elected as President, and Mr. Frank Ketton took the combined position of Hon. Treasurer and Hon. Secretary, the previous holders of these offices having resigned. Vice-Presidents, Messrs. Copland, Healey, Grierson, Whitehead, Smeath, and Jackson. A series of outings during the summer are to be arranged, and prizes promised for the best work done at them. An exhibition was also talked of for the autumn.

R.N.E. College, Devonport.—On 7th a paper was read by Mr. R. L. Cole, M.A., on "The Elementary Principles of Photographic Lenses." The audience consisted of members of the club and a few friends interested in photographic work. The paper was illustrated by limelight, Mr. Cole having prepared some very descriptive diagrams on ground glass for projection on the screen.

Rotherham.—Monthly meeting March 7th, Dr. Baldwin, President, in the chair. Three new members were elected. The President and Hon. Sec. (Mr. Hemmingway) were appointed delegates to the Photographic Society of Great Britain (under the affiliation of societies' scheme). The National Competition Slides of the *Hand-Camera and Lantern Review* were displayed, and a good deal of useful criticism resulted.

Sheffield.—A meeting was held on 7th inst., as a musical evening, Mr. B. J. Taylor in the chair. After a few remarks from the chairman of the advantages, instructive and otherwise, of photography, a very enjoyable programme was gone through, songs and recitations, etc., by local artists, viz., Messrs. Callum, Brooks, Gadsby, Wild, and Miss Doris Taylor. Also a series of lantern slides were exhibited, consisting of landscapes, seascapes, local and other views, the lantern being operated by Mr. Ernest Beck.

Shropshire.—An invitation lantern exhibition was given on 10th inst. The prize slides in the National Lantern Slide Competition were shown, and during the interval the Mayor presented to the club the single lantern given by the Britannia Works Co. as second prize in the above competition.

Wigan.—Ordinary meeting on 9th inst. Mr. S. Richardson gave a demonstration of Cresco Fylma, which was very successful, and exhibited to those present in a very marked degree the capabilities of this useful process of enlarging. Besides negatives and opals enlarged by Mr. Richardson, prints from negatives, both before and after being enlarged by this process, sent by the Company, were on view. On Thursday, the 23rd inst., Mr. Paul Lange will read a paper on hand-camera work.

Woolwich.—A meeting was held on 2nd inst., Major Davies chairman. After some preliminary business, the Chairman called upon Mr. S. Buchanan Wollaston to give his lecture on "Platinotype Paper." Mr. Wollaston dwelt more particularly on the merits of the new cold-bath paper, claiming that it is more under control in development, and lends itself admirably to brush treatment. With the judicious use of glycerine as a mechanical agent for retarding local development, the power is given to the operator of obtaining highly satisfactory results from even very poor negatives.

* * *

The Delmen Art Studios have been opened by Messrs. Downey and Mendelssohn at 470 and 472, Holloway Road, and on Saturday an afternoon "At Home" was held, when music and recitations were given. The studio and reception and dressing rooms are fitted up in beautiful style, and with every convenience.

Magic Photographs.—Take an ordinary print on albumen paper, and after washing to remove all the free nitrate of silver, immerse in the following solution (in the dark-room):—

Saturated solution bichloride of mercury	1 oz.
Hydrochloric acid	1 dram.

The print will be gradually bleached in this liquid. The paper is then thoroughly washed and dried in the dark-room and preserved between folds of orange-coloured paper. Small pieces of blotting paper are cut the same size as the prints, and steeped in a saturated solution of hyposulphite of soda, and then dried. Place the albumen paper print side up on a pane of glass; on this lay the dry piece of blotting paper, moisten the latter thoroughly, place over it a pane of glass, and upon this a weight to bring the two pieces of paper into close contact. In a very short time the picture will appear in all its original detail and of a sepia tone.—*St. Louis and Canadian Photographer.*

Austin's "Adamantine" Half-tone Etching Process.—A specimen of this process of half-tone etching on copper was given in *Wilson's Photographic Magazine.* In the specimen every iota of space is covered by the minutest dots; otherwise the tints of the whites of the picture would be just the same blank surface as the margin of paper which surrounds it. By means of a fine stipple screen-plate these half tints are secured. Every value on the negative is reproduced. The negatives are manipulated almost the same as for the zinc method, but the print and etching are wholly different. The plates are coated quickly; printed in four or five minutes; developed in cold water without any previous "rolling up," and without any "rubbing," and give a beautiful black image which after drying and burnishing is ready for etching. Fifteen or twenty minutes suffice for this operation; and after rinsing and drying, the plate is ready for the proof-maker without removing the coating. The coating is as hard as adamant, being capable of withstanding many thousand impressions.

ENGLISH PHOTOGRAPHY AT THE WORLD'S FAIR.

ON inquiry at the offices of the Royal British Commission of the World's Fair, situated at the Society of Arts, John Street, Adelphi, we found that the following photographers and photographic firms will exhibit at Chicago:—Harold Baker, R. and J. Beck, Billington, Cameron and Smith, J. Doré, Godbold, Grubb, Lafayette, Lemere, Mendelssohn, Oeffelein, Riley Bros., Ross and Co., Lyd. Sawyer, Symonds, Vander Weyde, Walery, Warneuke, Watson and Co., Clement Williams, Window and Grove, Winter, and York and Co.

Most of the large railway lines and many iron and other firms are also sending photographs to illustrate their works, scenery, etc., In the art loan exhibit we noted the following names:—Abney (B.), Alfieri (S.), Bhedwar (P.), T. J. Bright (B.), Gambier Bolton (C.), Brownrigg (P.), Burchett (P.), Byrne (P. and S.), R. Briant (P.), Eustace Calland (S. and P.), Conrt Cole (S. and P.). J. M. Cameron (C.), H. Hay Cameron (P.), W. R. Cassels (P.) W. L. Colls (P.), Conway Seymour (P.), W. Crookes (P.), F. Cobb (P.), G. Davison (P.), Adam Diston (Pg. and S.), Dresser (B.), Horsley Hinton (P.), Gale (C. and P.), Hollyer (P.), H. M. Hastings (P.), Hussey, R. Keene (P.), Keighley (P.), R. H. Lord (P.), E. Main (P.), Maskell (P.), Mendelssohn (C.), H. P. Robinson (S., C., and P.), Ralph Robinson (P.), Lyd. Sawyer (P.), Sutcliffe (C. P., and Pg.), Stevens (S.), Terras (P.), Seyton Scott (B., P., and S.), Tolley (P.), Vander Weyde (P.), West (C.), Williams (C.), B. Gay Wilkinson (P.), Winter (P.), Wellington, Karl Greger (S.), Howard (S.), Martin Harding (S.)

The letters after the names signify the process in which the exhibits will be printed, e.g., S. = silver, P. = platinum, B. = bromide, Pg. = photogravure.

* * *

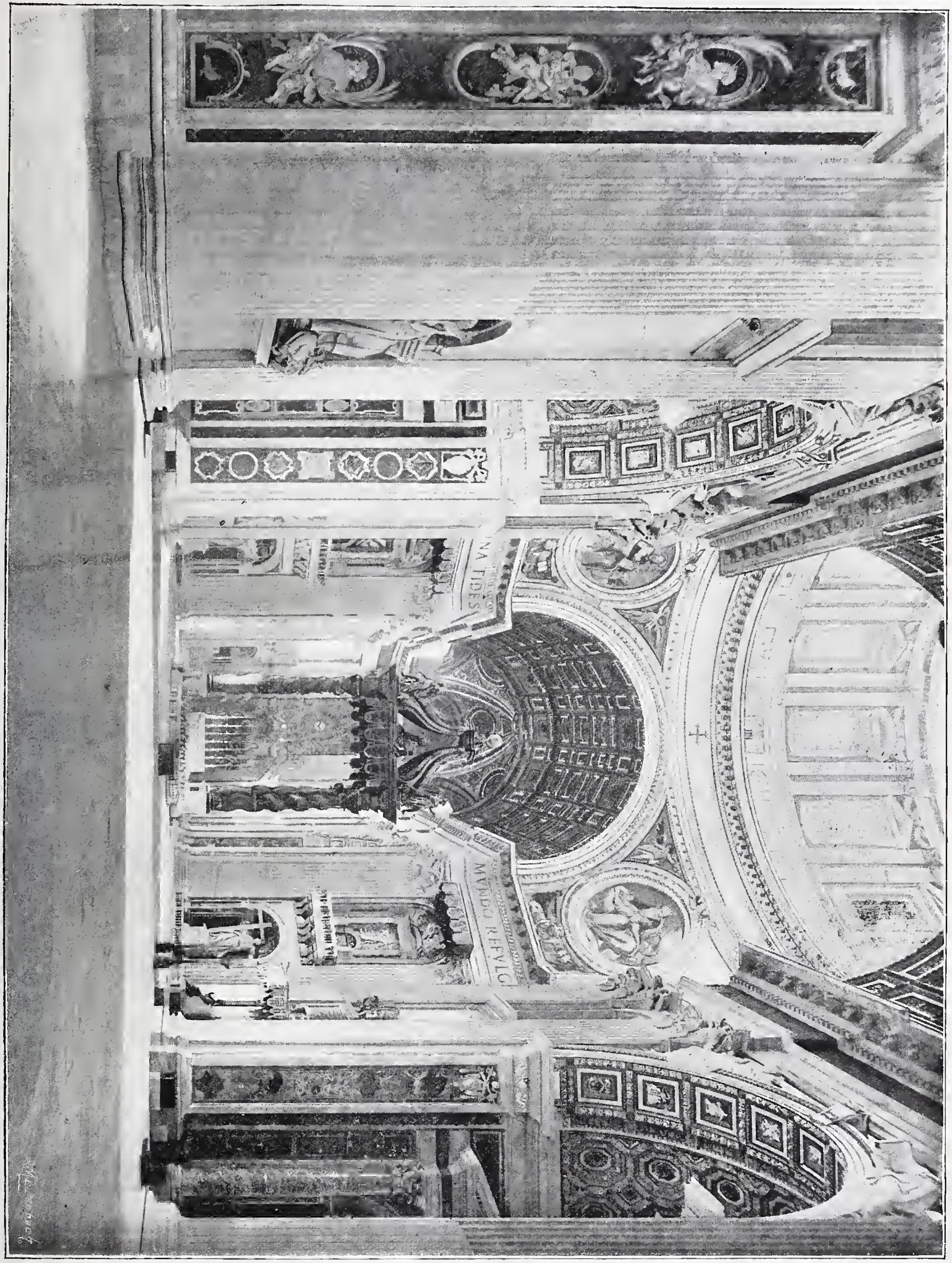
A New Intensifier.—The following has been published by *Photo Archiv* as a new method of intensifying gelatine emulsion negatives, but it is perhaps more applicable to photo-mechanical processes than to chemical silver printing. Dissolve in 1 quart of water 15 gr. of iodine and 30 gr. of iodide of potassium, and immerse the negative in the solution till the plate turns thoroughly yellow. After careful washing until the drippings are free from colour, 1 per cent. solution of Schlippe's salt made alkaline with a trifle of caustic soda is poured over and the plate again washed. The deposit is then of a dark reddish brown colour, and the non-exposed portions are absolutely clear.

Electric Spark Photography.—The latest machine designed for use in electric spark photography gives quite remarkable results, states a writer in the New York *World*. Articles moving at the rate of 10,000 miles an hour can be photographed, and by the introduction of a revolving mirror, a speed of 180,000 miles an hour can be coped with. The mirror makes 1,024 turns every second, worked by electricity, which is about 150 times as fast as a rifle bullet travels. The whole photographic power of the spark is over in a time equal to the ten or eleven millionth part of a second, and it is during that incredibly brief space that the image is made on the sensitive plate.—*American Journal of Photography.*

The Benevolent.—Meeting of the Committee held at the registered offices of the Association, Memorial Hall, E.C., on March 13th, Mr. Alexander Mackie in the chair. Three applicants for assistance appeared to state their cases, and in each instance the assistance asked for was granted. It was in small sums: £1 to set up a roadside worker with apparatus, a few shillings to help an out-of-work man to reach his next situation, and a few shillings to redeem a man and his wife from absolute starvation. A couple of pounds covered the whole of the grants, but the investigation of the cases occupied over two hours. Thirteen new subscribers who had been introduced by Mr. Birt Acres were accepted, and a hope was expressed that other managers and employers would introduce the subject of the Benevolent to their employés as Mr. Birt Acres had.

Aerial Perspective.—Objects as we see them in reality, in addition to extending on a plane parallel to our eyes, also extend toward us and from us; and, as one object after another is added to those constituting the scene before us, there is an actual recession which, as in the case of landscape scenes, if we would travel from our point of sight to the extreme boundary of our scene, would often take us very many miles away from our starting point. This continual receding of parts which is often spoken of as the natural perspective of a view, is so common to us that it does not arrest the attention in any way until we see a representation of it upon a flat surface as in a drawing, painting, or photograph. Then it is that we feel the shortcoming of art; yet this very shortcoming contributes one of the greatest beauties in a well-executed work of art, because by the skill of the painter is overcome the appearance of want of relief and the very deceptiveness of that which he presents to our vision adds to its charm. The knowledge of this fact and the effort of the higher class photographer to vie with the painter have given rise to the discussion of the result of certain alterations of focus to bring about, if possible, this perspective

Taken on A "SANDELL" PLATE.



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effect. The chief reliance of the landscape photographer for the attainment of the effect of retirement in the receding passages of his picture must be the intervention of atmosphere, and he must choose a time when there is such prevalence of haziness as precisely suits his aim. Only the most careful observation and continual practice will train the photographer in this matter, and no simple blurring of distance by imperfect focus will attain the desired aim when atmosphere is entirely absent.—*Xanthus Smith, in the "American Journal of Photography," January*, 1893.

St. Helens.—On 14th inst. a lantern exhibition was given. Mr. Jesse Boydell, President of the society, occupied the chair. The attendance was unusually large. The subject was the Peak and Dales of Derbyshire, over 100 slides having been lent by the proprietors of the Amateur Photographer. These were shown by means of a powerful lantern, manipulated by Mr. Nicoll, the lecturer Mr. Jas. Critchley, a member of the society. A map of the Midland Railway was first thrown upon the screen, and the geographical position of Derbyshire pointed out. Then a start was made at Ambergate Junction, and the beautiful country embracing Lea Hurst the home of Florence Nightingale, and Willersley Castle the residence of the Arkwrights, the black rocks at Cromford, Via Gellia, Bonsall, and Matlock Bath and town, with their varied points of interest, was traversed. Haddon Hall, that historical seat of the Vernons, was represented by some charming views, and the tomb of the eloping Dorothy Vernon, and her husband Lord John Manners, in Bakewell Church, was regarded with peculiar interest. But the gem of the evening was the exquisite group of views of Chatsworth, the princely seat of the Duke of Devonshire, and these were succeeded by a visit to Edensor, the Duke's model village, in the churchyard of which lie the remains of many members of the noble house of Cavendish, including Lord Frederick, who was assassinated in Phœnix Park, Dublin. This grave was shown in all its simplicity, no costly monument having been reared to tell the sad tale. The audience were then conducted through the beautiful Monsal Dale, Miller's Dale, and Ashwood Dale, with their wild romantic beauty, to Buxton. This inland watering-place having been amply illustrated, Castleton was thrown upon the screen, and Peak Castle, Peak Cavern, and the Shivering Mountain (Mam Tor), from which one of the finest landscapes in England is seen, were successively shown. The exhibition concluded with a number of excellent photographs of scenery near Marple, taken by Mr. Critchley. A vote of thanks to Mr. Nicholl and Mr. Critchley was proposed by Mr. Geo. Marsh, a native of Derby, who is intimately acquainted with many of the places shown, and who bore testimony to the faithfulness of the views of thirty miles of some of the most charming scenery in England. Mr. J. J. Dutton, who had made a most pleasing visit to Buxton, seconded the resolution, which was supported by Mr. W. Pollett, a native of North Derbyshire, and carried with applause.—*Communicated.*

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

Rules.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.
4. All matters for these columns MUST be received by TUESDAY MORNING'S Post.
5. The Editor does not undertake to answer Questions by post.

QUERIES.

5976. **Roll Holders and Roll Holders and Cameras Combined.**—Can any of your readers give numbers and dates of patents issued for the above during the last six years?—W. D. S.

5977. **Instantaneous.**—Can anyone tell me of a quarter-plate camera with lens fulfilling the following conditions: Produce an image, say of a kitten in rapid movement, with sharp definition, big enough to occupy the larger portion of the quarter-plate; and at same time be rapid enough to take the picture on a day not absolutely bright? Also what shutter is the best for this work? Any information will greatly oblige.—Rufus.

5978. **Varnishing.**—How can I remove the lines which the varnish makes on the negative, without doing any harm to the negative?—H. V.

5979. **Developer.**—Is it possible to quicken Lockyer's concentrated hydroquinone developer by adding any chemical?—Kent.

5980 **Toning.**—Can any of your readers explain the reason for Powell's compressed toning bath not acting on Solio paper? I shall be much obliged for an answer.—X. I. S.

5981. **Westminster Abbey.**—Using an R.R. lens, what plate is best to use, and what exposure is required using that plate, when taking photographs in Westminster Abbey at say about midday?—M. Y. S.

5982. **Reducing Negatives.**—I have intensified some hydroquinone-developed negatives with bichloride mercury and ammonia; now they are too dense. How can I reduce them?—Dozey G.

5983. **Winchester Cathedral.**—Can anyone say whether permission is granted free to photograph interior of this cathedral? I have an idea that a charge of a guinea is exacted—even from amateurs.—P.

5984. **Mending Negative.**—Would any one of your readers kindly tell me how I could mend a negative of a church? I have broken the corner completely off. The broken part is in the sky of the negative.—M. Cheney.

5985. **Black Varnish.**—Will a brother amateur tell me how to make a good dead black to paint inside of camera and dark slides?—M. Cheney.

5986. **Dark-room.**—Would a reader kindly inform me of a remedy to keep my dark-room dry, as I cannot leave anything in it because it is so damp.—M. Cheney.

5987. **Single Fluid Transparent Negative Developer for Dry Plates.**—Will any kind reader give the formula for this developer, which has answered well for many years, and, another thing, it does not stain the fingers.—Campania.

5988. **Fixing and Toning Prints.**—The formula for this combined solution will be much esteemed; I have so few back numbers I cannot refer.—Campania.

5989. **Light Tripod.**—Does any reader know of a reliable metal tripod suitable for half-plate camera and intended for use in connection with cycling? Surely it ought to be possible to improve greatly on the usual clumsy wooden pattern in portability if not in lightness, and it would be a great boon to photographers generally if a compact four-fold stand could be invented. My own stand when closed measures 18 in. by 4 in. by 2 in., and weighs 3 lb. 4 oz.—Liverpool.

ANSWERS.

5963. **Photography at Kew.**—If "Ralph" will write to the Directors, Kew Gardens, S.W., he can obtain permission to photograph in the houses before noon on each day, and in the open during the hours the gardens are open to the public. The permit is available till the end of the year.—A. W. Cook.

5971. **Llandudno.**—You will find much work here for four days. A fine view can be had of the entrance to the Marine Drive, also one or two along the drive, one or two also can be had upon the Great Orme Head, fine views near Little Orme Head, also Conway four miles by rail, worth a visit.—T. E. A.

5959. **Hydroquinone.**—It is not advisable to use hydroquinone alone, as it produces harsh negatives of little value. This is a good developer (Dresser's formula):—

A.

Hydroquinone	150 gr.
Neutral sulphite soda	600 ,,
Bromide potassium	25 ,,
Water (make up to)	20 oz.

B.

Carbonate potassium	2 oz.
Carbonate soda	2 ,,
Water (make up to)	20 ,,

For use, mix equal parts of A and B. This solution will keep for some weeks if you never pour back any spent developer. It is a very good developer for lantern slides.

Eikonogen	1 oz.
Sulphite soda	4 ,,
Carb. potassium	1 ,,
Carb. soda	1½ ,,

Mix up by boiling, and make up to 30 oz. of water. For use—

No. 1.

Quinone	2 parts.
Eikonogen	1 part.

No. 2.

Quinone	2 parts.
Eikonogen	3 ,,

No. 3.—Eikonogen, full strength. Begin by using No. 1, and if the exposure is about right, finish with No. 2. If under-exposed, begin with No. 2, and if you cannot get density use No. 3 full strength. In case of over-exposure have at hand a 10 per cent solution of bromide potassium, and add about ½ drm. per ounce of developer.—Eclipse.

5960. **Blocking-out Background.**—This you can do by painting the background very carefully with a rather strong solution of perchloride of iron, in which put 2 or 3 drops of hydrochloric acid. When the background has nearly gone, put the negative (after washing it) into strong hyposulphite solution. Then wash well and dry. You can get rid of every particle of background if you go on long enough.—R. A. R. Bennett.

5961. **Loan of Negatives.**—I will lend "P." a half-plate negative of Carisbrooke Castle if he wishes it. Address with Editor.—Eclipse.

5964. **Acetate Toning Bath.**—Acetate of soda, 30 gr.; chloride of gold, 1 gr.; water, 5 oz. Use the next day.—R. A. R Bennett.

5965. **Intensifier.**—The following intensifier may suit you:—

A.

Potassium bromide	180 gr.
Water	10 oz.

B.

Cupric sulphate	240 gr.
Water	10 oz.

Mix the solution, and, after standing a few hours, filter out any potassium sulphate. The method of intensification is the same as with the mercuric salt. The deposit may be darkened with a solution of ammonia in water, say, water 10 oz., ammonia 1 drm.—Eclipse.

5967. **Toning**—Yes, if it is not clear, but it ought to be—R. A. R. Bennett.

5967. **Toning.**—There is no harm in it. Careful workers generally do.—Eclipse.

5959. **Hydroquinone.**—In answer to "Sandown's" query, he cannot possibly do better than to try Lockyer's concentrated hydroquinone developer, which is sold in pint and half-pint bottles at 1s. 6d and 2s. 6d. respectively, and can be obtained of all principal photographic dealers.—Montrose.

5970. **Uranium Intensification.**—I have found by simply washing my negative that all traces of the intensifier are removed, and I fear the querist failed to well wash the negative to free it from all hypo before starting to intensify it. If this is the case I know of no remedy.—Montrose.

5972. **Mounting Chloride Prints**—Prints on these papers are mounted on glass by a very simple process, viz., soak the prints in water for a minute, in the meanwhile clean the glass on which you require to mount the print, and then lay the print film down on the glass without blotting it, lay a piece of blotting paper on the print and gently run the squeegee over it till the greater part of the water is removed, and then remove the blotting paper and roll the squeegee over the print a few times and let it dry. There are other ways of doing this, but the process given is most simple and more permanent.—Montrose.

5974. **Studio.**—In reply to this query, studios can be bought cheap and can be made for very little. I advise the querist to purchase one made if he can get one of the required dimensions; if not, he will find in the "Amateur Photographers' Annual," 1891, full particulars of how to proceed.—Montrose.

5975. **Broken Negative.**—"Ignoramus" will find he will obtain a better negative by contact printing. The plate best to use is the Barnet, although no special plate is recommended for this work. I find I get satisfactory results on these plates when used for this work.—Montrose.

5975. **Broken Negative.**—Yes, more or less, if the slide is a good one. Any ordinary negative plate will do, either by contact or through camera.—Eclipse.

5975. **Broken Negative.**—If the transparency is of the right size make the negative by contact in a printing frame. If it is smaller or larger, you will have to enlarge or reduce in the camera. Use the same developer as the one the negative was developed with, and if the transparency has all the details visible, the negative ought to be just as good as the broken one. Use the same brand of plates as the broken negative.—R. A. R. BENNETT.

5949. **Easter Holidays.**—I went over this ground with a camera last August, and shall be pleased to send L. S. Z. a copy of my tour if he will write me.—R. W. COPEMAN, Kuklos Cottage, Henstridge, Blandford.

5959. **Hydroquinone.**—I think "Sandown" will find the following formula what he wants—

Hydroquinone..	6 parts
Sodium sulphite	60 ,,
Sodium carbonate	60 ,,
Eosin	·06 part
Distilled water, to make	250 parts

For use, dilute with four times the quantity of water, and add a few drops of 10 per cent. solution of bromide of potassium as restrainer.—KING'S NORTON.

5959. **Hydroquinone.**—The following is known as Dr. Piffard's:—

Hydroquinone	100 gr.
Potassium carbonate	300 ,,
Sodium sulphite..	400 ,,
Water	20 oz.

Single-solution developers are the best thing for spoiling plates, as there is no compensation for over or under exposure, and the solution commences to oxidize directly the alkali is added to it, and continues till it is useless.—CODBECK.

5959. **Hydroquinone.**—Take of—

Hydroquinone	100 gr.
Potassium carbonate	300 ,,
Sodium sulphite (recryst.)	400 ,,
Water	20 oz.

Dissolve and filter thoroughly. Use sufficient quantity. When plate is developed, do not waste the solution, but pour back in a separate bottle for future requirement, adding some fresh each time you develop.—ZEBRA.

5860. **Blocking-out Background.**—I am afraid there is no method that would prove satisfactory, as you suggest, viz., by reduction. Needless to say, if the background is at all dense, a reducer of great strength, and painted round the portrait with the aid of a fine brush, must certainly be employed. In the first place, scrupulous care would have to be exercised, as a slip of the brush and your negative is perhaps ruined. I have a portrait myself which I should very much like to see without the background, being ugly shrubs. I dare not meddle with the film side, as the negative is very valuable. I thought one of the dealers might get it blocked out for me, but it was returned untouched. I am now trying an experiment in another way, masking and double printing. Take a print from the negative (not too dark), and with a small pair of sharp-pointed scissors cut out the portrait very neatly and exactly, leaving the mask. Now damp this mask with a wet sponge (the unsensitised side), and lay on clean white blotting paper, then go carefully all over with gum, hold up the negative, and place in position on the glass side (not the film). Press down gently, taking caution not to shift the mask. Allow to dry. When printing is carried on, the mask will blacken, forming a complete light obstructive. But instead of the background being black, as you require, it will be white. If you keep the portrait cut from the mask and place it over that of the finished print evenly under a clean piece of glass in the printing frame, exposing to light, your background may be brought to any shade. True, all this is troublesome and tedious; doubtless it will repay both you and me.—ZEBRA.

5962. **Toning Solio Prints.**—I should say the prints were not printed deep enough, that the fixing bath was too strong, and the prints had been kept in it too long. Use 3 oz. of hypo to 20 oz. water, and keep prints moving for ten minutes.—CODBECK.

5962. **Toning Solio Prints**—Carry on your printing deeper, until the shadows are quite dark. Evidently you do not allow prints to remain sufficiently in toning bath. The colour can only be judged by examining through transmitted light. If there is any bright red in them, keep on toning. When that has disappeared you can safely fix. A reliable and easy bath to manipulate for either Solio or Ilford P.O.P. see my answer to Query 5953, Sulphocyanide, in last week's AMATEUR PHOTOGRAPHER.—ZEBRA.

5964. **Acetate Toning Bath.**—

Acetate soda	30 gr.
Gold..	1 ,,
Water	10 oz.

Mix twenty-four hours before use.—CODBECK.

5964. **Acetate Toning Bath.**—The following is satisfactory:—

No. 1.	
Powdered borax	6 dram.
Acetate of soda	3 ,,
Bicarbonate of soda	1½ ,,
Distilled water	80 oz.
No. 2.	
Chloride of gold	15 gr.
Water	15 oz.

Mix in proportion of 5 oz. of No. 1 to 1 oz. of No. 2, two hours before use. This bath keeps well.—KING'S NORTON.

5964. **Acetate Toning Bath.**—I have used this with success:—

Acetate soda	1 oz.
Water	15 ,,
Chloride gold	15 gr.

Call this stock solution. For use take 1 oz. stock to 10 oz. water for one sheet of paper.—DOZEY G.

5964. **Acetate Toning Bath.**—

Acetate soda	½ oz.
Gold chloride	3½ gr.
Water	60 oz.

This will keep good for months, used over and over again. Add more gold when getting slow, about 1 gr.—ZEBRA.

5966. **Blacking Metal Slides.**—Get some Bates's black varnish from any photographic stores, or order it through your chemist.—CODBECK.

5967. **Toning.**—Some solutions require filtering, but not all; it is unnecessary unless stated.—ZEBRA.

5967. **Toning.**—That depends upon the particular bath used. It is not necessary with a new borax. acetate or tungstate bath.—CODBECK.

5968. **Under-exposure.**—You will require a 10 per cent. solution of ammonia and one of bromide of potassium in addition to the pyro solution which I have already given. For an over-exposed plate commence with half the normal ammonia solution, adding, say, 30 or 40 minims of bromide of potassium, adding the remainder of the ammonia 10 minims at a time as required. For under-exposure, commence with the normal quantity, omitting the bromide, and increase the ammonia as required. If the excess of ammonia is great it is then necessary to add a little bromide to prevent ammonia fog. Get Lyonel Clark's book on "Development," published by Hazell, Watson, and Viney, price 1s. post free.—CODBECK.

5972. **Mounting Chloride Prints.**—Chloride paper, unlike albumen, requires no gelatine adhesive. What you allude to are called "opalines." Place both glass and print in a dish of clean water, the print above the glass. When the print lies perfectly flat and limp, gently raise the glass by one end and lift from dish, carrying the print with its face in contact with the glass. Well squeegee to remove air bubbles and wrinkles. You can obtain the frames from almost any photographic stores. Try Adams and Co., or Fallowfield.—ZEBRA.

5972. **Mounting Chloride Prints.**—I do this as ordinary silver ones. When fairly dry, soak in thin gelatine, warm, squeegee to glass to get rid of air bubbles, and leave to dry.—DOZEY G.

QUERIES UNANSWERED.

March 10.—No. 5969.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

F. M. (Hurstpierpoint)—Many thanks for your kindly reminder. It is a sight for us poor Londoners, and certainly brings a whiff of fresh country air, and, unfortunately, sets us longing to get away for a few days. Flatness in prints may be due to over-exposure or want of care in developing, not continuing developing long enough, or printing in too bright a light.

V. R. J.—You can obtain periscopic lenses from almost any optician. Perken, Son, and Rayment, or Dollond will sell. The rule for finding focus is; Multiply the foci of the two combinations together, and divide by the sum obtained by adding them together and subtracting the distance of separation. You want a half-plate and whole-plate lens; let us say then you have 16 in. and 12 in. periscopic lenses, you will get—

$$16 \times 12 \div [(16 + 12) - 2] = 192 \div 26 = 7\tfrac{1}{2} \text{ in.}$$

If you want a longer focus you might use longer focus lenses; for instance, 20 in. and 18 in. lenses; and by using a 14 in. instead of the 12 in. with a 16 in you would get 8 in. focus combination. The stops should be put practically midway or in the proportion of foci, which would be 1½ in. from front lens. We had an article on page 327, November 4th, 1892, on the use of spectacle lenses, and Dollonds sell such lenses ready for use.

R. BUTLIN.—Yours is a very difficult question to answer, as there are so many things to be taken into consideration, but we should use *f*/32, and give about 5 sec., and, to make sure, a second exposure of 10 sec.

CHIPS.—(1) The exposure with rapid bromide paper would be about 10 min.; slow, about 20 min. (2) The Ilford formula is—

1.	
Pyro	7½ gr.
Water	1 oz.
2.	
Carbonate of soda	43½ gr.
Sodium sulphite	43½ ,,
Potass. bromide	1 ,,
Water	1 oz.

(3) R. Wormald and Co., Sutton, Surrey, will supply what you want.

ROBIN.—Yes, a very fine matt-surface may be obtained by using celluloid, which requires no preparation, though it is preferable to give it a waxing or oiling

J. T. H.—When the radiant is large there is always a trouble to get clear, even illumination, but it must be want of centering of the light. Try using ground-glass next condenser. Can you not put the lens inside the camera?

T. COCHRANE.—As a rule there is duty on the plates, but cameras in use are passed.

H. S. G.—Either your water-bottles or dishes must be dirty. The gold is frequently deposited in old acetate baths after some time, but never in a few minutes.

J. SHAW.—Yes, we have no condition which debars the slide from competing.

MONA.—You have attempted too much; a small bit of the shrub, showing all the details of the frost, would have been far more pleasing.

GEO. BUTTERWORTH.—(1) If you add the nitric acid to distilled water, and open a fresh bottle of pyro and pour the water on, the solution should be almost colourless. (2) Common water or old pyro will immediately cause a dark colour.

T. KIDD JUN. (Spain).—(1) Ilford P.O.P. (2) Benham and Froud's Perfection candle lamp.

C. E CARTER.—(1) Sheer perverseness on the part of the Editor; the 9 oz. formula is more correct. (2) The accelerator is the American standard which is not Beach's developer. (3) The ferrocyanide is said to give greater pluck and brilliancy to the negative. (4) Certainly you can keep the solutions separate, and use with judgment. Always glad to help you.

A. MCKERRON.—We do not allow such queries to appear in our columns now. The results obtained, however, are good though small.

R. P. STONE.—We should try the Fallowfield as the one most likely to suit your requirements.

G. B.—Your gold solution was acid, and on adding the soda carbonic acid was set free It is advisable to measure out 2 drachms of gold solution when required for use, neutralise and add to the sulphocyanide. Keep the stock solution acid, and to make the bulk acid add about ½ drachm of pure hydrochloric acid to it.

TOMMY ATKINS.—Many thanks, will utilise.

ECLIPSE.—Yes. the print would be eligible. We hope to have medal next week.

J. W. FORREST.—For all Royal parks, *i.e.*, Hyde Park and Hampton Court Palace, apply H. W. Primrose, H. M. Board of Works, Whitehall; for Tower, apply to the Governor of same.

MAJOR A. W. DRUMMOND-LEWIS.—Are you sure your chemist made the solution up properly? We have tried it and got good results. The prints do not require washing before placing in the bath. You will find an article on the same subject in our issue for March 25th, 1892, p. 251, which contains a very complete account of all that has been done on this subject.

AN OLD SUBSCRIBER.—The formula you want is as follows:—

Let A = focal length of combination or single lens that will give you the same enlargement.

F = focus of front lens.

f = focus of concave lens.

d = distance between the two lenses.

Then—

$$A = \frac{F \times}{F + f - d}.$$

d must always be greater than the difference between the two lenses in your case $(+7\tfrac{1}{2}) - (-2) = 5\tfrac{1}{2}$. Substituting these values for above we get

$$A = \frac{7\tfrac{1}{2} \times (-2)}{7\tfrac{1}{2} + -2 - 6} = \frac{-15}{-\tfrac{1}{2}} = +30.$$

To find the distance of rear lens from plate, let

Y = distance from plate to rear lens. Other quantities as above.

$$Y = A\left(\frac{F - d}{F}\right).$$

Substituting values for these we get—

$$Y = 30\left(\frac{7\tfrac{1}{2} - 6}{-7\tfrac{1}{2}}\right) = 30 \times \tfrac{1}{5} = 6.$$

Therefore the rear lens will be 6 in. from plate, and the front lens 6 in. from the rear lens. It is obvious the nearer the rear lens approaches the limit of separation—*i.e.*, difference of foci—the greater the enlargement, and by shifting the concave lens only ¼ in., that is to 5¾ in from front lens, you get a magnification of 60, and the distance from plate will then be 14 in. You do not state whether you used distilled water or not. There should be no precipitate if this was used.

B. B B.—Yes, quite right, keep on using *f*/8. The ordinary plates are about thirty times or 18° Warnerke, about the same as any other ordinary plate.

STUDENT.—The longer focus lens does not include quite so much subject, and therefore the perspective may be more pleasing, but for all-round work the 7 in. would be better.

TRIX.—(1) The borax bath will keep as long as the acetate, and we should say that two or three grains of gold ought to be used for a sheet of chloride paper. (2) The R.R. lens would be quite suitable for portraits, it should be used full aperture, and exposure out of doors about 2 sec., for landscape about $f/16$, and exposure about ½ sec. in sunlight.

XERXES.—(1) Yes, amidol may be used with isochromatic plates. (2) No, you cannot keep it in alcoholic solution.

G. K. T.—Undoubtedly the chloride papers are far more likely to give permanent results than albumenised paper, and for hot climates we should say collodio-choride paper would be more suitable.

COMPETITOR.—There is no limit to size. We should say that variety of tones would militate against the slides most strongly.

W. A. R.—There is practically nothing to choose between them; we should, however, possibly take No. 1.

S. K. H.—Presuming that your W.A.R. is of 5½ or 6in. focus, you could use it on a hand-camera, but as it works at $f/16$ it will be rather slow. Isochromatic plates can be used for ordinary work without a yellow screen.

RUFUS.—(1) Manson's Sensible focussing cloth; or Houghtons have one called Shenstone's; both are fixed to camera and will *not* blow about. (2) Gotz, 19, Buckingham Street, also makes iso. films, which are reliable. (3) The rapidities may be assumed to be ordinary 15, rapid 35, by Watkins; divide by 1½ and you will get H. and D. numbers.

BEGINNER.—We will see makers and write you.

H. J. ROGERS.—(1) The camera is as good as any other at the price. (2) Amidol or diamidophenol, most certainly.

D. F. NICHOLL.—We should certainly recommend No. 1 for a damp hot climate. No. 2 would not stand it at all.

A. K. TRAYLER.—Slides: (1) Good technically. (2) Ditto. (3) Wants a different shaped mask; too much foreground, and wants clouds. (5) Wants clouds. (5) All on the slant and not pretty; a little too weak. (6) Good. Take a little more care in masking; circular masks are not very suitable. Prints: (7) Very fair. (8) Absolutely devoid of interest. (9) Over-printed and too dark. (10) Good. (11) Ditto. (12) Spoilt by the background. (13) A little under-exposed. (14) Good. (15) Over-toned. (16) Good.

FOCUS.—We do not know the name on your lens at all. It may happen that the lenses are not properly centred, which would account for your troubls. But we gather from your letter that you are using it at $f/6$; you can hardly expect a lens of that character to cover at an aperture larger than $f/8$. Probably your lens has a very curved field. If you like to send the lens up, we will look at it, and may be able to suggest something.

H. G. PRICE.—(1) Over-printed, and the bits of boughs at top want painting out. (2) Good. (3) Camera not straight, and unequally toned. (4) Too much foreground, and too little sky. (5) Too black and heavy, and the white figures are not wanted. (6) Under-exposed and too harsh in contrast. (7) Fair. (8) Ditto. (9) Over-printed. (10) Absolutely without interest. (11) Over-printed, and nothing in it. (12) Over-exposed, flat and foggy. 8, 7, 4, 2, 1, are all that are up to third-class standard.

J. F. HEWITT.—Many thanks for print.

DIAMIDO.—You can only use the platinum chloride by converting it into chloro-platinite by passing sulphurous anhydride through it, or using cuprous chloride. It would be almost cheaper to take it to a refiner. The following hydroquinone formula will probably suit you.

Hydroquinone	2 gr.
Sodium sulphite	24 ,,
Carbonate of soda	24 ,,
Distilled water	1 oz.
Bromide of potash	10 gr.

V. W. M.—(1) Traces of pyro carried into the fixing bath will soon cause yellowness, and leaving it in an open dish will allow dirt, etc., to collect in it. (2) We are unable to enlarge upon this now, but will bear it in mind.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence*** *Every additional* ***three*** *words,* ***one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one word;*** *compound words count as* ***two words.)***

DEPOSITS.—*money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of* 2½ *per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge* 1s.

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of* 3d. *to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR, AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.,*** *or a commission of* ***2½ per cent.,*** *upon the sale price of the apparatus.*

Cameras, etc.—Park's 10 by 8 Rambler camera, three double slides, all movements, as new. What offers?—Wood, Perry Road, Bristol.

Excellent whole-plate camera, modern pattern, three slides, snap fastenings, brass-bound, £5 5s.—Daniell, Dovedale House, Llanelly.

Cameras, Lenses, etc.—Facile hand-camera, R.R. lens, very quick, works well at all stops, in solid leather case, cost £6 12s. 6d., offered at £3 5s., positively no fault beyond being rather too heavy for ladies' use.—S. Bretton, Strand House, Torquay.

Dallmeyer's 8½ by 6½ R.R., Waterhouse stops, £4 15s.; Vogel's portrait, 3in. diameter, 10in. focus, £5 5s.; 8½ by 8½ Meagher studio camera, four double slides, carriers, etc., £5; also 12 by 10 and 15 by 12 dipping baths, head rests, etc., cheap.—Daniell, Dovedale House, Llanelly.

Dark Slides, etc.—Three half-plate double slides (metal), including adapter, only used once, 10s. 6d.; Lancaster's pneumatic See Saw shutter, half-plate, 8s. 6d.—Glover, Percy Villa, Warwick.

Enlarging Apparatus.—Hume's Cantilever enlarging apparatus, 9in. condenser, with objective, quite new, never been used, price £8 10s., with box, lamp, and everything complete, original cost £16.—Address, Martin, Hilden, near Tonbridge.

10 by 8 daylight enlarging and reducing camera, fitted mahogany dark slide and focussing screen, cross fronts, carriers, etc., good working order, 25s., carriage free; no approval.—John A. Hodges, 46, Fairlawn Grove, Chiswick.

Hand-cameras, etc.—Kodak No. 3, about 30 exposures, equal new £5 15s., lowest.—Bygrave, 13, Canterbury Road, Brixton, S.W.

Lenses, etc.—Lens. Half-plate wide-angle rectilinear by Marion, as new, cost £3, will take £2 5s.; approval; deposit.—Rev. Atkins, Normandy, Guildford.

7 by 5 Optimus rapid rectilinear, equal new, 43s. 6d.; want portable symmetrical or wide-angle, perfect.—Huddleston, 285, Rawlinson Street, Barrow-in-Furness.

One Ross' universal rapid symmetrical lens, iris diaphragm, quarter-plate, 4¼ by 3¼, cost £5 10s., will take £3 10s.; one Suter's wide-angle aplanatic lens, covering 7½ by 5 to 9 by 7, fixed stops, cost £3 15s., will take £2; one Suter's aplanatic lens B, covering 9 by 7, Waterhouse stops, cost £3 15s., will take £2; all in perfect condition.—W. Parker, 96, Westborough, Scarborough.

Dallmeyer's triple achromatic lens, No. 1, for views 6½ by 4¾, Waterhouse diaphragms, also Dallmeyer's wide-angle landscape lens, patent No. 1, size of plate 7½ by 4, rotating stop, 45s. each.—Bridges, Rivenhall, Witham, Essex.

Lancaster's full-plate instantaneous lens and shutter, complete, 30s., or exchange for 12 by 10 and cash, same kind.—60, Load Street, Bewdley.

Lancaster's half-plate special Instantograph lens, with See Saw shutter, iris stops, covers well, new, 18s., cost 30s.—H. H., 21, Barclay Road, Fulham, S.W.

Watson's half-plate W.A. landscape lens with iris, new, cost £3, take half-price.—Glover, 40, Coniger Road, Parsons Green, S.W.

Sets.—Quarter-plate Talmer hand-camera, new, 55s.; 5in. condenser in nickel, new, 22s.; half-plate camera, Lancaster's leather bellows, three double backs, walnut tripod, folding, 52s.; Burr's 10 by 8 rapid rectilinear, new, £3; bamboo tripod for hand-camera, 5s.; enlarging camera, 12 by 10, 15s.; square mahogany camera by Stanley, 5 by 4, 15s.; portrait lens by Stanley, defective, 7s. 6d. Wanted, enlarging lantern.—Dalton, Wantage, Berkshire.

For sale, half-plate Lancaster Merveilleux set, Lancaster's 5 by 4 sliding body camera, quarter-plate portrait lens, nearly new, 7¼ by 4½ camera, double extension, leather bellows, single lens, £3 5s. lot.—J. Robinson, Marston, Bedford.

10 by 8 long-focus reversing back camera, by Wratten and Wainwright, all movements, two fronts, good rectilinear lens, stand, three double dark slides, two half-plate carriers, Grimston's instantaneous and time shutter, two leather cases, and various apparatus. May be seen in London. Price £12.—No. 385, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Half-plate taper camera and three backs, Perken, Son, and Rayment 7 by 5 euryscope lens (rapid), ash stand, camera case, head rest, ruby triangular lamp, two printing frames, rack, porcelain trays, vulcanite trays, measures, carriers, scales and weights, washer. What offers?—J. Beard, 17, Trearddur Square, Holyhead.

Lancaster's half-plate Le Meretoire camera, rectilinear lens, double dark slide, and excellent stand; will exchange for quarter-plate Instantograph or good stereoscopic camera, difference in cash.—Griffiths, 46, Church Road, Stanley, Liverpool.

Half-plate set, camera, mahogany extending body, double lens, dark slide, focussing glass, two trays, two bottles, developer, ruby lamp, printing frame, complete, in best order, in neat wood box, 37s. 6d., really a sacrifice.—Apply, John Barrett, Boathouse, Uddingston, Glasgow.

Exchange quarter-plate camera, lens, tripod, two double dark slides, for burnisher or background.—Green, Sun Street, Walsall.

Half-plate long extension best London-make camera, leather bellows, all movements, two best double slides, quarter carriers, extra fronts, polished ash tripod, £3, cost £4, nearly new; lock-up case and long strap for same, 8s. 6d.; several first-class lenses, cheap, giving up.—Lloyd, 4, Academy Buildings, Fanshaw Street, Hoxton, London.

Half-plate camera, without lens, four double dark slides, sliding and folding tripod, case, lamp, scales in box, frames, dishes, measures, etc., cost £10, sell £5. Older, Head Street, Halstead.

Quarter-plate Lancaster Merveilleux camera, in good condition, complete set, cost 21s., for 15s.; also Griffiths' hand-camera, with view finder, complete, cost 23s. 6d., for 18s.—Elmore, 50, Royal Road, Ramsgate.

5 by 4 double extension camera, all movements, four double slides, and case, £2 10s.; Lancaster's universal half-plate stand, 10s.; half-plate Eclipse changing bag, 5s.—J., 36, Arundel Square, London, N.

Quarter-plate Underwood's Convention camera, three double backs, R.R. lens, drop shutter, four fold tripod, almost new, 70s.—J. B. S., 4, Canning Crescent, Wood Green.

Half-plate Optimus camera, lens, dark slide, leather case, and tripod, £5 10s.—Arthur, 10, Dunsford Villas, Merton Road, Wandsworth.

Sundries.—Holiday lamp and box of candles, 7s. 6d.—C., 4, Strathearn Place, Edinboro'.

Valuable bargain. Beautiful toned violin in perfect preservation, with baize-lined case and good mounted bow, accept 15s. 6d. the lot; 20s. worth of unsoiled music given in free; a genuine bargain; suit any player; approval willingly.—Mrs. Graham, College Buildings, Ipswich.

Eleven last volumes of AMATEUR PHOTOGRAPHER, complete, unbound. What offers?—H. H. G., 3, Lyndhurst Road, Hampstead.

WANTED.

Cameras, etc.—Wanted, camera, half-plate Lancaster's Instantograph, with or without lens; state lowest price.—No. 386, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Sets.—Wanted, good half-plate set complete for cash.—Tom Lambert, Rodley, Leeds.

Wanted, half-plate camera, three slides, lens, and stand, Lancaster's Instantograph or International preferred, nearly new, in exchange for gent.'s splendid silver Elgin lever watch (keyless), scarcely soiled, valued at £6, guarantee given.—Guy, "Constitution," Omagh.

Will give £7 for good half-plate set.—Apply, No. 387, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Wanted, good whole-plate set; exchange stereo Instantograph, complete: full particulars.—Copeman, Henstridge.

Stereoscopic Apparatus.—Wanted, modern stereoscopic outfit, or any parts thereof, cheap, for cash; approval.—No. 380, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Tripod.—Stand for hand-camera, walking-stick preferred. State lowest price to Bradley, 76, Newland, Northampton.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

ENLARGING APPARATUS, quarter-plate, 5in. condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work.—Hume, 1, West College Street, Edinburgh.

LINCOLN CATHEDRAL.—Twelve slides of Lincoln Cathedral in exchange for others of equal merit, either comic or otherwise.—J. T. Birkbeck, 5, Bailgate, Lincoln.

Bargains in Cameras and Sets.—Camera, 10 by 8 finest mahogany, double extension, leather bellows, wide-angle movement, rising and falling front, fine rapid rectilinear lens, Waterhouse stops, two double slides, clips, and catches, and sliding two-fold stand as new, £8 15s.; whole-plate Duchess camera by London-Paris Optic Co., Aldersgate Street, grand lot, all movements, finest mahogany, best leather bellows, double extension, rising, falling, and cross fronts, two double slides, metal divisions, rapid rectilinear lens works *f*/8, Waterhouse stops and three-fold ash tripod, as new, £9 15s.; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; whole plate camera, as new, by Laverne, rising, falling, and cross, reversing wide-angle movement, best double extension, leather bellows, rapid rectilinear lens, Waterhouse stops, three double slides, and folding stand, warranted, £8 7s. 6d.; half-plate camera, by Houghton, Holborn, grand lot, double extension, rising and falling front, swing and reversing back, three double slides, grand rapid rectilinear lens, iris stops, works *f*/8, and three-fold stand, set as new, £6 10s.; Rapidograph half-plate camera, by Perken, Son, and Rayment, double extension, leather bellows, reversing and swing, three double slides, fine rapid rectilinear "Leviathan" lens, iris stops, grand definition, three-fold stand and case, £6 17s. 6d.; half-plate Underwood's Instanto camera, leather bellows, square wide-angle movement, rising, falling, and cross fronts, double dark slide, quarter carrier, rapid rectilinear lens, Waterhouse stops, and folding stand, £3 17s. 6d.; half-plate "Duke" camera, double extension leather bellows, rising, falling, and panel front, back and front extension, two double slides, metal division, rapid rectilinear, Waterhouse stops, and folding stand, as new, £6 5s.; quarter-plate extending camera, bellows body, rising and falling front by Morley, Islington, good landscape and portrait lens, double dark slide, and folding stand, 22s. 6d.; quarter-plate Optimus camera, square body, back extension, three double dark slides, fitted good rapid rectilinear, and folding stand, as new, 40s. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Hand Cameras.—No. 3 Talmer hand camera, fitted special rapid rectilinear lens, time and instantaneous shutter, adjustable focus, bag changing, cost £7 10s, take 75s.; Adams' Vesta Pocket hand camera, fitted Wray's 5 in. rapid rectilinear, time and instantaneous shutter, focussing flange, three double dark slides, reversing finder in leather case, size $7\frac{3}{8}$ by $4\frac{3}{8}$ by $1\frac{1}{2}$, lowest cash price, £5 10s; Lancaster's Omnigraph as new, landscape lens, see-saw shutter, finder, etc., 20s.; Laverne's hand camera, covered morocco, good lens, iris stops, time and instantaneous shutter, two finders, carries twelve quarter-plates, 60s.; No. 1 Kodak, R R. lens, shutter, etc., carries 100 films, in leather case, 37s. 6d., cost £5 5s.; Radial hand-camera, by Marion, fitted "Soho" lens, carries twelve quarter-plates, shutter, two finders, focusser, etc., in leather case, £5 17s. 6d.; Optimus detective camera, carries twelve quarter-plates, brass bound, fitted Wray's 5 by 4 R.R. lens, Thornton Pickard shutter, two finders, level, etc., as new, £5 7s. 6d.; Adams' Ideal hand-camera, all latest improvements, grand condition, fitted R R. lens, time and instantaneous shutter, two finders, carries 12 quarter-plates, covered morocco, £5 12s. 6d. lowest; Tit Bits hand-camera, good lens, two slides, covered leather, best order 10s. 6d.; Optimus detective camera, Optimus rapid rectilinear lens time and instantaneous shutter, adjustable focus, three double slides, covered leather, two finders, finest condition, £4 5s.; Houghton's Automatic hand-camera guaranteed as new, rapid rectilinear, rotating stops, Thornton-Pickard shutter, carries twelve quarter-plates, fine camera, £4 10s. All above are warranted as described. On view, City Sale and Exchange Roome, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Dallmeyer No. 3 10 by 8 rectilinear landscape, Waterhouse stops, finest condition, £4 17s. 6d.; whole-plate rapid rectilinear by Parker, Waterhouse stops, movable hood, 42s.; Optimus 9 by 7, portable symmetrical, rotating stops, *f*/11, as new, £2 17s. 6d.; whole-plate wide-angle rectilinear, by Laverne, fine definition, rotating stops, as new, 30s.; 7 by 5 "Black Band" lens by London Stereoscopic Co., Waterhouse stops, covers well, finest order, 45s.; Ross's No. 4 portable symmetrical 6 in. focus rotating stops, as new, 63s.; Crouch wide-angle rectilinear 6 in. focus, rotating stops, as new, 42s.; Ross 5 by 4 Universal symmetrical, iris stops, movable hood, works *f*/5·6, as new, £5 5s.; Lancaster's $\frac{1}{4}$-plate wide-angle lens, rotating stops, 6s. 9d.; Laverne 5 by 4 wide-angle rectilinear, finest condition, 17s. 6d.; On view, City Sale and Exchange Rooms, 54. Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

Magic Lanterns and Slides. — Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

Regulators and Gauges.—Great reduction, in price. Either can now be had of Walter Tyler for 14s. each. The largest stock of gas cylinders in England. Best seamless steel, tested and valved, and all sizes at very low prices.

Slides from Negatives and Pictures.—Walter Tyler manufactures and colours slides on the premises, thus ensuring speedy delivery, and prices are most moderate.—Walter Tyler, 48, Waterloo Road, London.

Biunial Lanterns.—If you are in want of a really good biunial lantern, perfect in every respect, call and see Walter Tyler's entire brass fronted, mahogany-bodied, lined with Russian iron, and fitted with new best quality lenses, and sold at a most moderate price. The top lantern will take a 4-wick lamp. These are great bargains.—Walter Tyler, 48, Waterloo Road, London.

Hire Department is now perfect. Largest and best collection of slides in the world; over 200,000 always in stock. Temperance, travels, Scripture, educational, comic, tales, etc. Cheaper than any other house, no extra charge for coloured slides or effects. Special terms for large quantities.—Walter Tyler, 48, Waterloo Road, London.

Lanterns and Slides.—If you wish to hire, purchase, or exchange, you cannot possibly do better than go to Walter Tyler, who makes this business a specialite, and you will thus save dealer's and all intermediate profits.—Walter Tyler, 48, Waterloo Road, London.

Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps. Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; scientifically constructed, not commercial; several whole and half plate for sale, cheap.

The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Science Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

Magic Lanterns, Magic Lanterns.—Largest assortment in the world, cheapest and best, nicely japanned lantern, 4 in. double condensers, portrait combination front lenses, rack and pinion, four-wick lamp, in case, £1 7s. 6d. Others more elaborate, but as cheap.

The Docwra Triple Prize Medal, highest award, supplied to Dr. H. Grattan Guinness, Capt. C. Selwyn, Madame Adelina Patti, and the Royal Polytechnic, etc.

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Fine Triple Lantern; telescopic draw tubes, four set of high-class lenses, £38 10s., worth nearly double. Given away.

Special Triple; mahogany, entire solid brass fronts, £12 12s.; a really good lantern, unequalled.

Elegant Mahogany Biunial; brass fronts, £7 10s.; blow-through safety jets, 6s. 6d. and 8s. 6d.; mixed gas jet, 12s. 6d.; Malden double dissolving tap, 12s. 6d.; regulators, 12s. 6d.; gauges, 12s. 6d.; grand effects; particulars free, before purchasing. Send for Mr. Hughes's grandly illustrated catalogue, over 180 finely cut original wood engravings, price 6d., postage 3d.; separate list of 60,000 slides, price 6d., postage 3d.; pamphlets free; second-hand lists free of bargains.—W. C. HUGHES, Brewster House, Mortimer Road, Kingsland, London, N. Fifty slides, all nicely coloured, on loan for 3s., in special despatch boxes.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

SECOND HAND BARGAINS at Butcher and Son's, Blackheath.

Lenses.—Andrew Ross's rapid cabinet lens, also half-plate studio camera and back, £10, lens cost £17 15s.; Sands and Hunter detective rectilinear, 4in. focus, rotating stops, as new, 35s.; 7 by 5 Lancaster's W.A. rectigraph, iris diaphragm, 20s.; Lancaster's half-plate Instantograph lens and shutter, complete, 15s.; 9 by 7 Optimus R.R., 12in. focus, Waterhouse stops, as new, 70s.; 9 by 7 Optimus portable symmetrical, rotating stops, equal to new, 70s.

Cameras.—Whole-plate by Stereoscopic Company, three backs, solid leather case, and tripod stand, all as new, excellent set, £9 10s.; whole-plate Meagher camera, one single back and one double back, strong tripod stand, and 9 by 7 French R.R. lens, Waterhouse stops, £5 10s.; half-plate by Thomas and Co., square bellows, three backs, all equal to new, tripod stand, solid leather case and brahma lock, 7 by 5 R.R. lens and 7 by 5 W.A. lens, Guerry shutter, first-class set, splendid condition, £12; half-plate Perken, Son, and Rayment's A.R. camera, three backs, £3 10s.; half-plate camera, London made, three backs, and R.R. lens, Waterhouse stops, £3 10s.; half-plate camera, London made, one back, single lens, with rack adjustment, £1 15s.; half-plate Lancaster's Instantograph, lens, one mahogany double dark slide and one metal slide, stand and case, £3; half-plate Underwood's Convention, £4 4s. set, new, shop soiled, £3 10s.; 5 by 4 London made camera, and three backs, in solid leather case, £2 5s.; quarter-plate Lancaster's Instantograph, three slides, waterproof case, without lens, £1 15s.; quarter-plate London made camera, back and stand, good condition, 30s.; quarter-plate Lancaster's Instantograph, old pattern, three backs, rectigraph lens, Waterhouse stops, very cheap, 30s.; quarter-plate Shew's Eclipse, lens, shutter, detective case, six double backs, and Eastman rollholder, complete set in perfect condition, £7; quarter-plate London-made camera, three backs, and R R. lens, Waterhouse stops, equal to new, £3 15s.; stereoscopic camera, Watson's, three double slides, perfect condition, also Morgan and Kidd's roller slide to fit, £3; 12 by 10 Meagher camera, double extension, one single back, suitable for enlarging camera, £2.

Hand - Cameras. — Half-plate Stereoscopic Company's Artist, solid leather case, as new, £10; Optimus Magazine quarter plate, slightly shop soiled, £6; mahogany hand-camera, case, to take ordinary quarter-plate camera, 20s.; No. 1 Kodak, perfectly new, loaded 60 exposures and sealed, as supplied by the Company, £2; Samuel's Magazine, as new, take 12 quarter-plates, 25s; Mayfield's quarter-plate, in mahogany case, Laverne R.R. lens, three double backs, complete, £4.

Any of the above may be seen at W. BUTCHER AND SON'S, Photographic Stores, Blackheath, London, S.E., one minute from station S.E.R, or by arrangement at 315, Regent Street, W. Second-hand apparatus bought, sold, or taken in exchange. Inspection or correspondence invited.

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BY T. C. HEPWORTH, F.C.S.

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Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 442. Vol. XVII.] FRIDAY, MARCH 24, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 *till* 5 *o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from* 10 *till* 1 *o'clock.*

Our Views.—An Appeal—American Courtesies—A Compliment—*Answers* and Photography—Mr. Duguid and Spirit Photographs—Mr. Glendinning and Photography—Club Champions—Photographic Novices and Ghosts—The Sandgate Disaster—Van der Weyde's Exhibit for Chicago—An Incident at Piggott's.

Leader.—A Standard Light.

Articles.—Alas, Poor Ghost (G. C.)—Amidol (Mitchell)—The Study of Animals by Photography (Atkins).

Letters.—An Explanation Wanted (W.T.G.)—An Appeal (Duval)—A Pleasing Incident (Dawson)—Instantaneous Shutters (One who Doesn't Know)—Angle Formulæ (Wrangler)—Spirit Photography (Ghosts)—Washing Films (McIntosh)—Rodinal (E. Q. V.)—A Warning (P.).

Societies' Meetings.—Ashton—Birmingham—Darlington—Derby—Eastbourne—E. London—Edinburgh—Hackney—Harringay Lewes—Leicester—Louth—Newcastle—N. Middlesex—P.S.G.B.—P. S. I.—Putney—Shropshire—S. Manchester—Southsea—Ulster and Belfast—Uttoxeter—W. London.

Apparatus.—The Queen Hand Camera—Marion's Cartridges—Gray's Aluminium Stand.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Competition, No. 46. Hand-Camera Work.—Latest day, April 13th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, **Amateur Photographer, 1, Creed Lane, E.C.** (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, April 28th, 1893.)

In our correspondence columns Mr. C. F. S. Duval makes an appeal for a very worthy object, namely, the dissemination of photographs amongst home and foreign missions. We shall be very pleased to support this scheme as far as we can, and will undertake to send to Dr. Grattan Guinness any prints that may be forwarded to us, and further, we will add from our large store an equal number.

◆

Our American confrères often make excerpts from articles appearing in our pages, a proceeding which we by no means object to when acknowledged, especially as we frequently return the compliment by abstracting an article from their pages, but it is rather hard when one of our articles is taken and slightly altered and put in as an editorial leader without any acknowledgement.

◆

We publish a letter this week which is very gratifying, not only to us but also to Mr. Harry Wade, the author of the paper referred to. We shall hope to hear more of Mr. Wade, as he has begun in the right way to make a name for himself.

◆

Many a time and oft have we noted the extraordinary statements in the lay press on matters photographic, but the following clipping from *Answers* caps the whole:—

> "Captain Colson, of the French Genie, has succeeded in photographing without a lens. A simple camera, into which light is admitted by a pinhole, suffices him to produce well-defined images of immovable objects. The exposure must be longer, that is all."

Reading this, one would suppose that pinhole photography was a new and important discovery. Personally, we fancy we have heard of it before.

◆

Yet another side light on spirit photography appears in our correspondence this week. With reference to Mr. Duguid, we have now in our possession two cartes de visite, bearing on the back the imprint:

"Portrait and Landscape
Photographers,
D. DUGUID & SONS,
108, Renfield Street, Glasgow.

Negatives Kept.

Additional copies can always be had.

This or any other portrait enlarged
to life size and painted in oil
or water-colours to order.
McG. and B., Glasgow."

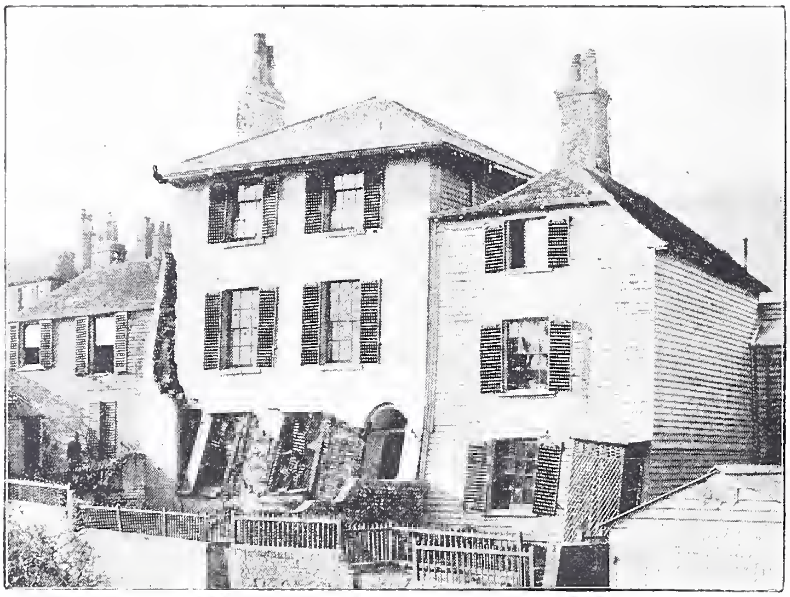
The last line obviously refers to Messrs. McGhie and Bolton, the well-known dealers, who can still further substantiate the fact that Mr. Duguid was a photographer.

* * *

IF, as stated by our correspondent, Mr. Glendinning is more or less skilled in photographic manipulations, we must look upon the experiments of Mr. Traill Taylor with still greater suspicion. It is a pity that trickery and chicanery should be introduced into the subject, because there are many of us who would wish to see some such proof as a photograph of what is said to exist.

* * *

IT is a vexed question with the members of many societies that the champions of the club should be allowed year after year to compete at the annual exhibitions on the same footing as themselves. They assert that under the present conditions they stand absolutely no chance whatever, as the prize or medal is sure to be won by the champion. They contend that he ought to be handicapped after winning a first prize by being debarred henceforth from entering the members' classes, and only permitted to compete in the open classes. On behalf of their contention they point to the conditions under which every other kind of competition is carried out, where anyone who distinguishes himself by gaining prizes soon finds himself on a back mark, being obliged to allow starts to the other competitors. If some such course were adopted, and the club champion placed on the "scratch" mark, it would undoubtedly promote better feeling amongst the members.



* * *

THE path of the future photographic novice is not becoming more rosy. The terrors of the dark room are already sufficient for a good many weak-nerved amateurs, but now that ghosts and goblins have cultivated a fancy for leaving weird impressions upon plates, these terrors have been increased tenfold. What more befitting place for a "spiritual manifestation" than in the midst of the dull red gloom that prevails whilst development is progressing? and the mortal that is developing a "spook" negative may tremble lest he feel a ghostly warning touch on the arm, and may exclaim with the poet, "Are things what they seem, or are visions about?"

* * *

ON 11th inst. people rushed out of their cottages at Sandgate, exclaiming, "There's an earthquake," the houses and ground being all of a tremble, which turned out to be the serious landslip, which worked havoc amongst houses, roadway, and property in all directions of this pretty watering-place. The coastguard station, a building of sixteen cottages, is totally ruined and dozens of others. One which cannot pass unnoticed, Spring House, situated by the main road, is now in a most dangerous position, and is guarded by the police, who expect it to fall every minute. The accompanying illustration will give one an idea of this terrible subsidence; it is a fair sample of the ruins; almost everyone has read the full account before this. There has been quite an army of photographers at work, and many thousands of people are visiting the place daily from all parts.

* * *

BY the kindness of Mr. Savage, of 22, Church Street, Folkestone, we are able to give our readers an illustration, which gives a good idea of the ill-effects of the landslip.

* * *

MR. VAN DER WEYDE, the well-known photographer of Regent Street, is sending to Chicago an exhibit of very fine work, some of life-size proportions. And we have this week had an opportunity of inspecting the same. Should no other professional exhibit be sent from England, we may rest content that from this alone our American cousins will be able to form a capital idea of the high-water mark photography has reached on this side.

* * *

SPECIMENS of work of Mr. Van der Weyde's photo-corrector are also to be sent, and we were informed that now this has been so simplified that its use is practically reduced to merely turning a button, the whole arrangement being fitted inside the camera and is quite invisible.

* * *

ON Saturday last Piggott's well-known premises in Cheapside were the scene of a little trouble, which, however, ended happily. Three valiant gentlemen in blue were obsequiously watching and waiting for a reverend clergyman, who was squeezing his way out of the fanlight, and he was forthwith told to "come along."

* * *

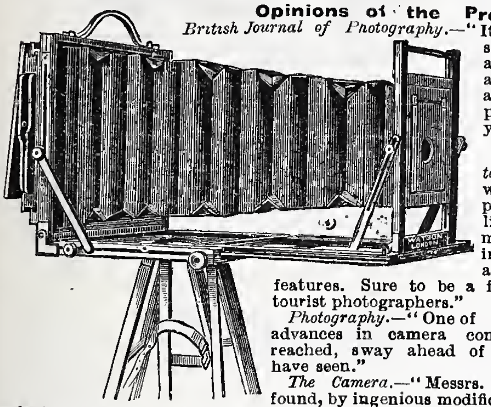
PROTESTING his innocence, he said that he had been selecting photographic apparatus and got locked in, an excuse which raised a weak and watery smile on the valiant officers' faces. But a friend in need appeared from the fanlight in the shape of Mr. F. W. Andrews, the Manager of the photographic department, who had accidentally been locked up with the aforesaid clergyman, and the three policemen walked off grumbling at being balked of a good case. What a chance was missed here for some enemy of the reverend gentleman to snapshot him in the act of crawling through the fanlight—what a sensation it would have caused at a lantern entertainment in the country parish if a slide of the vicar in this compromising position had been thrown on the screen!

* * *

The Educating Influence of Travel.—Travel is, or should be, a valuable educator and liberaliser, if the mind be receptive, not judging everything new by preconceived standards, often ignorantly decided upon, but ready to learn and profit by experience. A quick eye and appreciative brain will gain more positive benefit from seeing how much better some other intelligence can conceive and execute a single difficult piece of work, than by labouring for months alone, or with those who are at the most only on the same level as regards progress.—Miss Catherine Weed Barnes, in "A Camera Trip in Great Britain," American *Amateur Photographer*, January, 1893.

W. WATSON & SONS, 313, High Holborn, London.

WATSON'S "ACME" CAMERAS



Opinions of the Press.

British Journal of Photography.—"It folds into a smaller compass, and is lighter and more portable than any pattern we have yet seen."

Amateur Photographer.—"A wonderful, compact, and fairy-like instrument, exhibiting several new and important features. Sure to be a favourite with tourist photographers."

Photography.—"One of the greatest advances in camera construction yet reached, sway ahead of anything we have seen."

The Camera.—"Messrs. Watson have found, by ingenious modifications, how to make the weight still lighter, and the rigid still more firm."

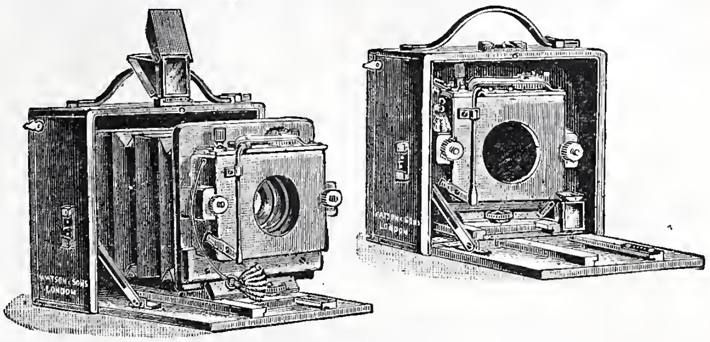
English Mechanic.—"For portability and compactness, combined with practical utility, this Camera may fairly be said to take the lead, and to be deserving of the title 'Acme.'"

W. W. & S. have the largest stock of Photographic Instruments held by any House in Europe.

Cameras and Lenses in all patterns and sizes from ¼-plate to 24 by 20, ready for immediate delivery, and being actual manufacturers, there is no middle profit to pay, and the very fullest value for cost is given in all their Instruments.

A Fully Illustrated and Descriptive CATALOGUE of Cameras, Lenses, and every Accessory Apparatus and Material requisite in Photography sent post free to any address on application.

THE "ALPHA" HAND CAMERA



Made in box form, of sufficient size to contain, when closed, the Bellows, Front, Lens, Shutter, and Finder. The front of the box falls down, and is held rigid and horizontal by a strut; the Camera is then extended along it to focus, a Scale of Distances is marked, but a ground glass is provided and can be used if desired. The Camera may be supplied complete, or alone, or fitted to any suitable Dark Slides, Lens, and Shutter.

	¼	5 by 4	½ plate
Made in Three Sizes			
Prices of Cameras without Slides	£1 10	£1 15	£2 10

COMPLETE OUTFITS.

	¼			5 by 4			½ plate.		
	£	s.	d.	£	s.	d.	£	s.	d.
Camera and 3 Double Slides	3	15	0	4	6	0	5	10	0
Watson's Rapid Rectilinear Lens, with Iris Diaphragm	2	17	6	3	2	6	4	0	0
Exposure Shutter...	1	0	0	1	0	0	1	0	0
Finder	0	10	6	0	10	6	0	10	6
Travelling Case ...	0	12	0	0	15	0	1	0	0
	8	15	0	9	14	0	12	0	6

	¼			5 by 4			½ plate.		
	£	s.	d.	£	s.	d	£	s.	d.
Camera & 1 Double Slide	2	5	0	2	12	0	3	10	0
Selected Continental Rectilinear Lens	1	10	0	1	10	0	2	5	0
Exposure Shutter...	1	0	0	1	0	0	1	0	0
Finder	0	10	6	0	10	6	0	10	6
Travelling Case ...	0	7	6	0	9	6	0	12	6
	5	13	0	6	2	0	7	18	0

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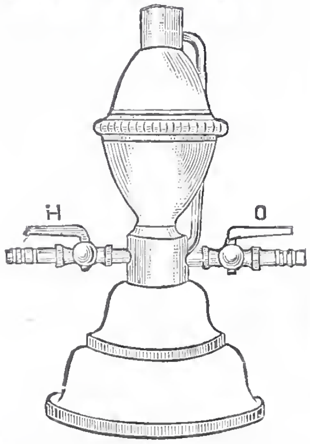

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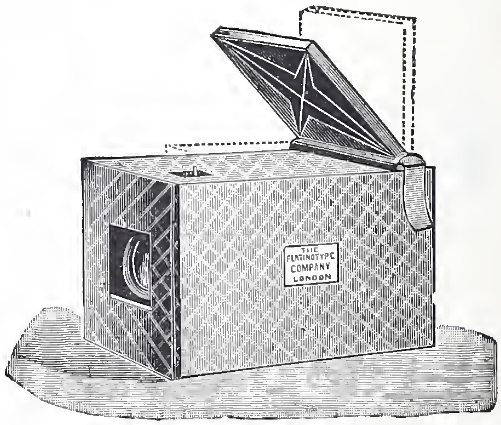

IMPROVED KEY CAMERA.

Simplest and Best Hand Camera made. Measures only 8 x $4\frac{3}{4}$ x 4 ins.

PRICE, Quarter-plate, £7 7s., with 6 Double-key Slides.
Ditto ditto 2nd Quality, £5, with 3 ditto ditto.

MAY BE SEEN AT THE OFFICE OF

The Platinotype Co.,

29, SOUTHAMPTON ROW, HOLBORN, LONDON, W.C.

A STANDARD LIGHT.

The next standard we have to consider is one which has attracted considerable attention lately, viz., Harcourt's Screened Pentane lamp, which consists of a glass vessel mounted on levelling screws, and provided with certain arrangements for obtaining a constant height of flame and constant light. We do not think it necessary to fully describe this, although a complete description will be found in "Practical Photometry, a Guide to the Study of the Measurement of Light," by W. J. Dibdin, who states that this lamp is a great improvement upon the first one devised by the same inventor. In addition to being very constant, it is exceedingly simple to manipulate. It is in reality an improved amyl-acetate lamp,' but burning pentane.

Another standard proposed is Dibdin's Pentane Argand, which is a Sugg Argand so modified to burn pentane, and which it is stated gives very regular and constant results. We have received information from a large plate manufacturer that he has tried the pentane lamp, and found that the light is yellow, and, so far as he could see, no improvement on the candle, or but little as regards constancy.

Pentane is one of the higher hydrocarbons obtained from American and Galician petroleums, coal tar, and resin oils, and boils at 37 deg.—39 deg. So far we have not been able to find any statement as to the character of the spectrum emitted by the same, but the statement referred to above, that the flame was decidedly yellow, is sufficient to make us assume that the flame is poor in blue and violet rays.

The light we propose as a standard is certainly by no means perfect. That we do not wish for one moment to assume, but we do say that it possesses some advantages which the others do not—particularly that of spectrum value.

As most of our readers know, the incandescent gas system depends in principle upon the raising to the point of incandescence a special mantle or web of refractory materials. This light was very well known some few years back as the Welsbach, but since then it has been vastly improved, in the direction of less fragile mantles and a better light.

In a paper read before the Soc. of Chem. Ind., Feb. 16th, 1891, W. Mackean gives some valuable information on the subject, and as we have used this light for some considerable time for spectroscopic and photographic work, we certainly think it is possible to obtain from this a light which is far more suitable for photographic purposes than any other that we know.

In the first place the colour of the light and its spectrum values are really under control, because by slightly altering the fluid with which the mantle is impregnated, it is possible to obtain white, yellow, orange, or green light.

Further than that, we are not dependent on ordinary coal gas, for it would be possible to use carburetted air, even air impregnated with pentane, to raise the mantles to incandescence. The old objection to the fragile nature of the mantles is now disposed of to a large extent; they are capable of standing far rougher usage than hitherto.

The photographic activity or actinic power of the light is astonishing. We have had several tests made with these lights, and found that, in comparison with an ordinary batswing burner, the relative power of the light is as 1 : 7, so that for all purposes other than as a standard light there is a great advantage, and we have a note upon this applied to portraiture.

That there are no disadvantages attendant on the use of this light we do not for a moment infer. In fact, there is one very serious disadvantage, and that is, that the illuminating power is not constant; that is to say, that after a certain number of hours of use there is a loss in candle power. Yet even this difficulty is not insuperable, as in a table given by Mr. Mackean (*loc. cit. ante*) he has prepared mantles which only show a loss of candle power amounting to 1·7 after burning 1,000 hours, and we abstract the data referring to this particular mantle:—

Cubic feet Gas per hour	Pressure.	Original Candle Power	After 100 hours.	200	300	400	500	600	700	800	900	1,000
2·5	1	13·5	13·5	13·5	13 0	13·0	13 0	13·0	13 0	13.0	13 0	12·8

Considering the very short time that the light would be required for testing plates, we should say that this objection was not absolutely insuperable, and it might easily be got over by only using a mantle, say for 200 hours, and then a fresh one, but certainly the light seems to us to be far better than any other from a consideration of its spectrum value. We throw it out merely as a suggestion, but we may state that if any of our readers are using gas for enlarging, reducing, or contact work, they will find a great advantage in the shortening of the duration of exposure by the use of this.

PORTRAITURE BY GASLIGHT.

We visited last week Mr. C. F. Treble's studio at Queen's Parade, Clapham Junction, to see the application of the incandescent gas light to portrait work, and found that by an ingenious contrivance of a diffuser and several burners it was possible to obtain effects of lighting equally as fine as with daylight. Submitting ourselves to the painful operation of "being took," we found that seven seconds was quite sufficient to give a soft and well-worked-through negative.

This is to a great extent due to the capitally-devised plan of diffusing the light and to the strong actinic character of the same. The heat of the light is by no means trying, in fact we may say that it would on a cold day be decidedly grateful. A background and screen is disposed on one side of the sitter, and thus one practically has a small studio which can be easily set up in any ordinary room without much disarrangement for ordinary purposes.

Mr. Treble proposes to have a room fitted up at the forthcoming Crystal Palace Exhibition, where the actual working may be seen.

Letters to the Editor.

AN EXPLANATION WANTED.

Sir,—Wishing to dry a negative quickly a few days ago, I took it from the rack in my dark-room, where the temperature was rather low, and laid on an oak mantleshelf which was perceptibly warm to the touch. A rim of about an inch wide had dried in my dark-room, and the remainder of the negative dried very quickly on the warm mantleshelf. I was astonished to find a marked difference in the intensity of the two parts, that which had been dried by heat having much greater intensity and contrast than the other. I had never heard this peculiarity mentioned, and determined to investigate it. I exposed a plate on a printed page, developed, fixed, and washed as usual, but let one half of the plate (divided diagonally) dry, whilst the other half was immersed in water. This took place in my dark-room which was moderately heated, and that half of the plate took about five hours to dry. I then took the plate from the water, waited till the surplus water had run off, and dried the other half by the aid of heat in about ten minutes.

The result you can see for yourself. The contrast between the two parts seems to me very remarkable, and I should be glad to know what the scientific reason for the difference is. I must point out that there was an original difference in the intensity of the negative, owing to uneven lighting, the upper left-hand corner being thinnest and the lower right-hand corner densest. It was on account of this that I divided the plate diagonally in drying from the thin corner to the dense.

I had always thought that the density of a negative was entirely due to the deposit of metallic silver in the film, but this experiment rather upsets that idea. I am very anxious to have this matter explained. The practical result is that this is a remarkably easy way to intensify a negative. It seems to make no difference whether the negative has been previously dried, if soaked in water again and dried rapidly by the aid of heat the density will be most remarkably increased. Great care must be taken that there are no tear drops of water on the negative when exposed to heat, else stains will result.—Yours truly, W. T. G.

St John's, Newfoundland, Feb. 16th, 1893.

[In our issue of September 11th, 1891, we had a leader on this subject under the title of "An Unanswered Question," and pointed out that there was an increase of density if negatives were dried by heat or spirit. Some wiseacre, not courageous enough to write to us direct, wrote to a contemporary jeering at the statements, and said that everybody knew that the increase of density was due to melting of the gelatine and aggregation of the same round the silver salt, an explanation nonsensical in the extreme.—EDITOR.]

* * * *

AN APPEAL.

SIR,—I feel persuaded from what I have seen in your paper, that you will readily allow me a little space to appeal to my brother amateurs to made a good use of some of their beautiful work.

Perhaps few of us are aware of the very real means of usefulness and good that are placed in our hands by the camera. We who have every comfort and refinement that education has produced must we not often think of those poor people in London and elsewhere (some of whom, I believe, hardly know what grass or a tree is like), to whom one of our little views would be a lasting joy in the house, and with who knows what results? There are many missionaries labouring in foreign lands who would be delighted to have one or two pictures of their dear old England on their walls. To those who would like to make this good, unselfish use of their camera, I should like to mention the name of Dr. Grattan Guinness, of Harley House, Bow, London, E., who is in touch with home and foreign missions, and who will be only too pleased to receive any mounted views, of *whatever merit*, to distribute amongst the poor and send abroad. Some of us may find the field for this work in our own town or village. Wherever it may be, let us remember, "It is more blessed to give than to receive," and I feel sure that if we really thought of all that we have been blessed with, we should have more sympathy with these poor brothers and sisters of ours, whose lives are destitute of joy or comfort.—Yours, etc.,

C. F. S. DUVAL.

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A PLEASING INCIDENT.

SIR,—A little incident came to light at our club last night which is rather pleasing to your paper and ourselves.

Last April Mr. Harry Wade (a son of Mr. J. W. Wade, of Gold Medal fame), who is an apprentice with one of our leading professionals, read a paper giving results of experiments of an easy method of preparing emulsion of gelatino-chloride for opals and paper. This was printed for private circulation, a copy of which was sent to you. Your article has been followed by a Mr. Todd, of San Francisco, who is a professional there. Mr. Todd has sent Mr. Harry Wade some specimens of his work on the lines laid down in the AMATEUR PHOTOGRAPHER. I thought that you would like to know of a fact such as this, with no humbug about it, especially when Mr. Harry Wade was only seventeen when conducting his experiments.—Yours, etc.,

CHAS. DAWSON

(Hon. Sec. Manchester Camera Club).

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INSTANTANEOUS SHUTTERS.

SIR,—I read with considerable interest the letter signed "C. P.," *in re* speed of shutters, but could not follow it, as he says that he used two separate cameras, a roller-blind shutter on one and a Newman's patent on the other.

Now, in the first place, the question arises, What roller-blind shutter? as there are several different kinds. Which Newman's patent? There are several.

He says that the moving dog came at different heights on the two plates, and that he increased the speed of the roller-blind shutter. Now, were the two cameras held level and at the same height and directed in the same line? Was not the under-exposed plate owing to the fact that the roller-blind shutter was actually working at a far higher speed than the other?—Yours, etc.,

ONE WHO DOESN'T KNOW.

* * * *

ANGLE FORMULÆ.

SIR,—I think I should be wanting in courtesy if I did not say that Mr. Rice's explanation, namely, that he omitted a foot-note explaining that the proportions between the angles and lines in his diagram were intended only as a very close *approximation* to the truth, removes my objection, and I willingly acknowledge that his method gives results sufficiently near the truth for all practical purposes.—Yours, etc., A CAMBRIDGE WRANGLER.

SPIRIT PHOTOGRAPHY.

SIR,—Mr. T. Taylor, at the London and Provincial Association on the 9th inst., stated that "some persons may be mediums without knowing it," and that "such a one is Mr. D"(uguid). He knows too much for Mr. Taylor, anyhow. What tricks an experienced photographer can play with his camera we all know, and he can produce very many funny and curious results when so minded. Your issue of the 17th inst. states that Mr. Duguid has been a professional photographer. I wish to add that Mr. Glendinning has also a more or less knowledge of photography, for he has been seen practising it. Those two men in collusion could, I doubt not, very easily trick even Mr. Traill Taylor, to say nothing of the other guests if they were unacquainted with photography.

Mr. Glendinning keeps a vegetarian house in the City, and Mr. Hume Nisbet, in his recent work, "The Black Drop," has chosen to hint that some of the characters he has pourtrayed are psychological studies from life, and that the purport of the entire work is to expose the falsehood and humbug that surround the doctrines that support vegetarinism and spiritualism. Was he thinking of Messrs. Duguid and Glendinning when he wrote the book?—Yours, etc.,

GHOSTS.

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WASHING FILMS.

SIR,—As the question of washing cut films appears to be exciting attention, the following inexpensive method may be useful to your readers. Bend the film gelatine side inwards into the form of an arch and tie round it a piece of thread. If the washing tank has not a false bottom, place a couple of strips of metal or weighted wood along the bottom and the films placed side by side upon these. When the bottom of the tank is filled, another parcel can be placed on top of the first. No scratching can take place, and as the gelatine side is downward the hypo is removed with great facility. The threads will serve to hang the films by while drying. This method was brought before the North Middlesex Society by Mr. Frost last year, and was reported in the AMATEUR PHOTOGRAPHER at the time.—I am, etc., J. McINTOSH.

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RODINAL.

SIR,—I have seen it frequently stated in the various periodicals that density cannot be got with this developer when used for snapshots. I have not found this the case when it is used as follows: a solution is first made up of one part rodinal to thirty parts water, which brings out the detail; after which the negative is put into a solution of one to nine, with the addition of six or eight drops of a 10 per cent. solution of bromide of potash, in which it acquires density. Enclosed is a print from a negative of black and dark-brown Highland cattle, taken late in October. The exposure was instantaneous, with full opening of a Zeiss lens in a Clifford hand-camera. The plate used was a Paget xxxxx times, and the print is on Solio paper, toned with gold in the borax bath.—Yours, etc.,

ESSE QUAM VIDERI.

[The print sent looks as though printed from a plucky, dense negative.—EDITOR.

* * * *

A WARNING.

SIR,—Allow me to make use of this opportunity to warn amateurs to be careful about the drying of negatives on shelves or other places which are dusty, if draining racks are not used. Two days ago I placed a negative on a shelf to dry, and, upon examining it when nearly dry, I found a dirty stain nearly half an inch wide, extending from one of its edges inwards, caused by dust on the shelf. I tried to eradicate the stain, which I did with fair success, eradicating at the same time a fair amount of density. I mention this as a warning, for prevention is better than cure.—Yours, etc., P.

Catalogues.

PERKEN, SON, AND RAYMENT, 99, Hatton Garden, E.C.

From this firm we have received a well got-up and well-illustrated catalogue of apparatus, lanterns, and optical instruments. A special feature is made of the well-known "Optimus lenses," which we note have advanced slightly in price. A new line is the carefully-paired stereoscopic lenses at 80s. and 120s. per pair.

SANDS AND HUNTER, 23, Cranbourne Street.

This firm has sent us an addenda to their catalogue, which contains a number of bargains in second-hand cameras and lenses, which are well worth attention.

The Study of Animals by Photographers.

By "Tommy Atkins."

The study of art in photography seems to take the whole space set apart in our photographic journals for articles on the various subjects in connection with photography, and leaves other subjects quite untouched. But of all the subjects which have the least attention in this way, I do not think animal study is to be beaten. Why this is the case I cannot say, but it appears, from what little has been written upon the subject, that animal study is a study by which it is very difficult to get at all satisfactory results, and also it necessitates a considerable outlay, and it requires a rare lot of time before it is possible to get anywhere near perfect in the work. These are, in my opinion, the chief causes for our authors not having more to say on the subject. Whether or not these are the reasons I cannot answer. But beginning from the first question asked in connection with photography, as to the cost of the process of work, it will at once be seen perfectly clear that, although some amateurs can afford, if I may use the word, to take up a hobby which from the very beginning is very expensive, how much more expensive is it to take to studying a certain branch in photography which is the most expensive to keep up, or rather to get perfect in? As it is impossible to answer this, I am sure it will be agreed that in most cases the financial point is that point which prevents a great number of workers in photography who would, if they could, study animal photography. But again, the art side of photography has drawn most workers' attention, which it must also be admitted is very difficult to get perfect in; but animal study produces artistic pictures as much in proportion as landscape. But landscape or seascape studies generally contain practically no moving objects, whereas animal studies are those which are nothing but moving, and they require to be taken at certain times and while the animals are in a certain position, and always to be taken instantaneously. By these examples it will be seen and clearly understood that, after all, animal study is the most expensive, troublesome, and the least successful section in photography. Again, this is another cause for our authors not writing on the subject, which, perhaps, if done would help this work to be more generally studied, and its usefulness and interesting qualities more clearly seen, which up to the present most workers are quite ignorant of. Animal study, it has been said, is the most difficult subject to treat, and it really requires all the attention of the worker, and it would be scarcely believed the number of plates it uses, and the amount of time which it occupies, even on one single animal, such as a dog, which, when looked at ordinarily, looks very simple to manage; but no person who has exposed a plate on any animal can say it is a study by which good results are readily obtained.

But perhaps some readers may say it is easy to work when using a hand-camera. This is quite right to a certain extent, inasmuch as you are almost sure of getting the animal, but whether you will get it in such a good position as with an ordinary tripod camera it is not possible to say, unless it is known what animal is being taken. But such as birds cannot be taken with an ordinary camera with success, hand-cameras being the only means of obtaining such animals. Again, a horse-race; this can only be taken with a hand-camera to any real advantage. The tripod camera would be quite out of question in most cases, when and where such shots are taken, so altogether the hand-camera is the best camera to use if animal study is the worker's principal aim; but for such animals as dogs, cats, horses, cows, sheep, etc., the tripod camera would answer the purpose as well as any, and, further, a better picture in all respects is, of course, obtained; for instance, whereas the hand-camera is only quarter-plate size or smaller, the tripod camera is half-plate or larger, and consequently the animal is larger, and with further details in each case. And as better lenses are given with or for tripod cameras than for or with hand-cameras, the tripod worker will have this advantage with those studies over the hand-cameras. But in all cases instantaneous work must be adopted, and for a tripod camera the Thornton-Pickard time and instantaneous shutter cannot be beaten. The only fault to be found with shutters is that most of them make a noise while exposing light to the plate, which, although not very loud, is sufficient to cause, perhaps, a twitch of the ear or eye of the animal being taken, which shows on the negative nine times out of ten. But I think if a large size camera is used the noise will not be noticed as much. But, I think, not only does a noise cause the described movement, but any movement by any body or thing which is to be seen by the animal will have the same effect. Although most shutters give very quick exposures, they are not in many cases quick enough for such movements and noises. Again, it is always most advisable not to allow anybody to stand where animal can see, unless of course in certain cases, when, for instance, it is found necessary to hold something up for the animal to look at, and which will, if kept perfectly still, make the animal as steady as possible, but if whatever is held up is moved at all, the animal will be bound to follow its natural course, and in all probability do damage to the camera, or, at least, spoil the plate; and it is scarcely necessary to say that each worker will not get far with this work before he has much experience. Although just now it is not the neglect of hand-cameras on which I am writing, what I have quoted will give each reader a clear proof that now hand-cameras are so cheap and numerous, it will not be long before animals will be shot at by most hand-camerists, and then we will see more animal studies exhibited at the various exhibitions, not especially for medals, but for the privilege of having the pictures hung up for all visitors to see. The workers in photography seem to be doing all in their power to work photography up to the front rank in the art world, and although this is without doubt most sensible, it must be remembered it requires hard work; and at the same time, why should not animal study be brought into more general practice? This cannot be done by the workers themselves, but the workers together with the editors of our photographic papers, the former to patronise and the latter to start competitions on animal study alone. There is no need to ask for seascape studies; these are always taken with any camera, and although this study is very interesting, I don't know of any more interesting than animal study. But the majority of workers may be inclined to say that animal study is more trouble than it is worth. Quite true, till you are able to take animals with success. And again, the majority of workers aim at taking such subjects as require the least trouble, which can only contain the least number of faults, and which they know will be much admired and thought "very good" by all their friends, and with all these thoughts the majority of workers also attempt portraiture, the most difficult subject to please both the worker and the sitter together; and when the worker is informed that animal study is very difficult and expensive they give up all ideas of thinking to attempt it, little thinking that portraiture is almost as difficult to get good results from, and in the end it is perhaps more expensive in one sense, inasmuch that you have to please the sitter as well as yourself, a task by no means easily managed.

The apparatus required for this work is not anything different to that which is used for ordinary work. The only things extra are a shutter, plates, and plenty of patience and time. With these each in full swing, anyone ought to get something of a picture before long. I need not say a cap is useless nine times out of ten. As before stated, the Thornton Pickard cannot be beaten. As regards backgrounds, these should be as plain as possible and such as will not draw the observer's attention from the study. The light best to take such studies is bright but not sun light. There should not be any wind about, and no person should be near the animal except under special conditions. The plates used should be rapid, but not extra rapid, and the developer had best be pyro to begin with. Although these few particulars and hints read as if the work was easily managed, the amateur will find it just to the contrary at first, but after a few good trials he will, in all probability, be able to produce a good animal study. In concluding my remarks upon this subject I can only leave a word for each reader and worker, that each one should have a try at the work, and if not successful at first, "try, try again;" and I again say this work is the most interesting and instructive branch of photography, and should be practised by each worker; and I hope the various papers will henceforth provide more food for the hungry workers, and at the same time hold competitions for the benefit of bringing this work more into general practice amongst amateur photographers.

* * *

The Purity of Water.—Water possesses an enormous dissolving force, and whenever it comes in contact with soluble substances they are taken up, and according to the strata through which it percolates it is impregnated with them. When containing but traces of mineral substances, soft water may be used for photographic purposes; but hard water, the mineral and gaseous contents of which are perceptible to our senses, should never be employed. To test water for impurities it should be subjected to analyses. For the photographer, however, it is sufficient to find in a superficial way whether the water in question is pure enough for his purposes. The most reliable test, and which will answer for any photographer, is that with soap. Soft water containing but a trace of mineral substances will turn slightly opalescent on the addition of a few drops of an alcoholic solution of soap. With hard water a more decided change takes places on the addition of soap; it turns milky and curdy. The fatty acids of the soap combine with the base of the metallic salt, forming a precipitate which eventually can be filtered off. Rain and snow water is the purest. Water containing lime should never be used with the ferrous oxalate developer.—*Photo. Times.*

"Alas, Poor Ghost!"

"*I wants to make yer flesh creep!*"—PICKWICK.

BY G. C.

THIS period of the year may fairly be regarded as the photographic silly season. The lantern season is nearly over; the camera season has scarcely begun. And about now our old friend, the "spirit photograph," usually glides across the screen, while its supporters "squeak and gibber in the public Press."

But this time we have had a really conscientious attempt to solve the mystery. But what an attempt! Assuming for the moment that it has succeeded, what a bitter disappointment! Even the bold photographer acknowledges that they are, photographically, "vile." "Solidity" was not, for obvious reasons, to be expected of them, but we are told that when viewed in a stereoscope, they appear "flat;" their outlines are harsh and crude; *non angeli, sed anguli.* Then what do they represent? Thrones, principalities, dominations, powers, or what? Harmless "doppelganger," or malevolent spectre? Will some one learned in psychology answer the question? Whatever they are, photography does not show them off to advantage. We did not expect anything very elaborate; we hardly thought that "a frightful fiend from the nethermost hell" would stroll into the studio, and demand a sitting—"you take me or I will take you.' But we did expect, naturally enough too, that the spirits possessed some *esprit de corps:* that, when they knew that their professional reputation was at stake, they would send some more creditable representatives than those which elicited the flouts and jeers of the members of the London and Provincial on the 9th inst.

But were those photographs genuine? At first sight they appear to be palpable shams. But Mr. Traill Taylor is a man of reputation, and his researches, however misdirected, deserve something more than a hasty sneer or contemptuous laugh. Now, in the first place, the experiments were not conducted with sufficient care and publicity. There is such a splendid opportunity for the trickery of the unscrupulous. Then, who was the medium? Mr. Taylor simply refers to him as "Mr. D.;" this has a sulphurous odour about it, but is unconvincing. Where did Mr. Taylor get the plates? There would be nothing easier than for a dealer to tamper with the packet ordered and to fasten them up again. A suggestion was made at the meeting at which these precious photographs were exhibited, that a Committee should be formed to investigate the matter. An excellent idea. But the Committee must settle the matter for good and all; and, in order that they may do this, I humbly suggest that the following precautions should be taken.

(1) That the Committee should consist of, say, twelve leading amateur and professional photographers.

(2) That a special packet of plates should be furnished by any leading firm of plate-makers, which packet should be sealed at the factory and sent direct to the Committee.

(3) That the room in which the experiments were to be conducted should have its walls repapered, and be locked up till the séance.

And if any photograph of a spirit is obtained under these circumstances, I cheerfully undertake to eat my focussing cloth.

But is it really worth while going to all this trouble? Let us consider first whether the photography of a spirit is even remotely possible. If there is a single loop-hole, the smallest crevice, in the wall which sharply divides the simple facts of science from the ill-defined conjectures of this semi-superstition, let spirit photography be admitted as worthy of calm, scientific investigation by all means.

It will be granted that a spirit is impalpable, without substance. It is therefore invisible. The many recorded instances of persons having seen "doubles," etc., are merely so many instances of optical delusion. Whether any spirit was present or not is beside the question; what I wish to show is that spirits are not visible to the bodily eye. The notion of a *visible* ghost is a contradiction in terms. This being granted, how is it possible to photograph a spirit—unless, indeed, sulphate of quinine enters largely into the ghostly composition? One cannot photograph an object which is unsubstantial. It is possible to so hypnotise the human brain that it actually believes it sees things which have no real existence, but the sensitive film is a simple chemical compound, totally unsusceptible to hypnotic influence. Therefore it follows that what is called the photograph of a spirit is simply a bit of more or less clumsy trickery.

Logically, spirit photography is impossible. Practically, it is useless. Sentimentally, it is extremely disappointing. From whatever point of view this curious outcome of blind credulity and third-rate sleight-of-hand is taken, it is absurd.

It is the duty of everyone interested in photography, whether as an art, a science, or a profession, to join in denouncing this stupid swindle. In this month's *Review of Reviews* there appears a highly instructive *precis* of an article which lately appeared in a French journal; it is an account of an attempt which was made last year in Paris to photograph the astral body—in other words, the soul! There is no need to describe the experiment at length. Anyone can read it for himself in the magazine to which I refer. The whole thing is, of course, a piece of shameless imposture on the one side and nervous folly on the other. The only mystery about it is that anyone should be found silly enough to believe and solemnly record such balderdash. Mr. Stead sensibly gives the extract without comment; it would, indeed, be superfluous. The immortal soul, it appears, consists of a luminous tissue, which may be fingered and examined and criticised as if it were a piece of cheap calico.

When one reads of scientific investigation being demanded for such palpable tomfoolery, one can heartily echo Puck's wicked chuckle, "Lord! what fools these mortals be!" The proper persons to investigate "spirit photography" are Messrs. Maskelyne and Cooke.

Amidol.*

BY C. L. MITCHELL.

THE writer, after dwelling in some detail upon the varying conditions which contribute to produce a building-up or etching action in process of development, and upon the action of acid and alkaline developers under varying circumstances, referred to a statement made in debate at the last meeting of the Society, that amidol was an *acid* developer, not a particle of alkali entering into its composition.

This, Dr. Mitchell continued, seemed diametrically opposed to the generally conceived views concerning the substance and to recent publications concerning it. The following experiments were, therefore, made with a view of definitely determining whether amidol was an *acid* developer; whether its reducing action would only take place in the presence of free acid; and whether the employment of an alkali was at all a necessity.

Amidol, the latest claimant for the favour of the photographic world, is stated to be a di-amido-phenol, a compound radical of the glycine class. This is presented for use, combined with an acid so as to form a salt. At present it is manufactured only by two German firms—M. J. Hauff, of Feuerbach, and Dr. M. Andriesen—both under letters patent. It is claimed to be far superior to all other developing agents in its rapidity of action, freedom from fog, full rendition of detail, etc.—all terms we are by this time well acquainted with—while in addition it is said to possess the property of acting freely and powerfully in the presence of sodium sulphite, without the addition of the usual alkaline accelerators. Samples of amidol were accordingly procured from the manufacturers' agents, that made by Hauff being obtained direct from Messrs. Schulze, Berge, and Koechl, of New York—that of Andriesen from the Scovill and Adams Company.

The amidol of Hauff was first examined. This was in the form of small acicular crystals, almost white, inodorous, and freely soluble in water. The solution in water, when tested with litmus paper, reacted strongly acid, and upon standing, shortly began to change in colour, growing of a pinkish tint, until at the end of a few hours the liquid was of a deep orange-brown colour similiar to an old pyro. solution. Three separate solutions were next made, each representing 10 grains of amidol and four ounces of distilled water; to these were added, respectively 25, 50, and 100 grains of chemically pure sodium sulphite. These were set aside for observation. At the end of 24 hours they had all slightly changed and become pinkish in colour; that containing the 25 grains of sodium sulphite being the most discolored. No perceptible deepening of the colour was observed after this, even after several days. This seemed to show that sodium sulphite exercised the same preservative action, owing, probably, to its oxygen-absorbing properties, upon solutions of amidol that it does with solutions of pyro. eikonogen, or hydrokinon.

The action of amidol as a developing agent was next tested. A sheet of Eastman's bromide paper was placed under an evenly balanced negtive, and then exposed to gas light for 30 seconds. This was cut into four parts and treated as follows:—

EXPERIMENT No. 1.

Part No. 1.—Treated with a solution of 10 grains amidol in 4 ounces water. No image appeared, even after the lapse of five minutes.

Part No. 2.—Treated with a solution of amidol 10 grains, sodium sulphite 25 grains, 4 ounces water. The image began to appear in 30 seconds.

Part No. 3.—Treated with a solution of amidol 10 grains, sodium sulphite 50 grains, 4 ounces water. The image began to appear in 15 seconds.

Part No. 4.—Treated with a solution of amidol 10 grains, sodium sulphite 100 grains, 4 ounces water. The image began to appear in 10 seconds.

These experiments showed clearly that amidol *by itself* was *not a*

Read before the Phot. Soc. of Philadelphia.

developer, and that the presence of other agents—in this case sodium sulphite—were necessary to start the reducing action, and that the rapidity of this action increased in proportion to the amount of sulphite present. So far these results proved nothing new, for the same facts had been previously noted by several other observers. The question at once arose, however, in the writer's mind, whether, as long as amidol by itself in solution had no appreciable reducing action, and that as sodium sulphite—a salt always found in the market in an alkaline condition—would bring this reduction into force in proportion to the quantity of the salt present, whether, therefore, the alkaline character of the salt was not really the cause of the reducing action, and whether, furthermore, other alkalies or feeble alkaline salts would not produce the same effect. A second series of experiments were accordingly made.

EXPERIMENT NO. 2.

A sheet of bromide paper was exposed as before and divided into two parts. A solution of amidol 5 grains, water 2 ounces, was then made, and this divided into two parts. These were poured at the same time upon the two portions of bromide paper in separate dishes. No action took place on the paper in either dish, and no image appeared even after five minutes. To the liquid in one dish was now added in small portions of 1 drachm at a time, a five per cent. solution of sodium carbonate in water. The liquid immediately changed colour, grew darker, and with the addition of the third portion the image began slowly to appear, and development then regularly progressed. With the other portion of bromide paper no image appeared at all.

EXPERIMENT NO. 3.

Another sheet of bromide paper was next taken and exposed as before and divided in four parts. These were treated as follows:—

Part No. 1.—With amidol 5 grains, sodium phosphate 50 grains, water 4 ounces. Liquid changed in colour to dark brown in a few minutes. Image appeared in about a minute.

Part No. 2.—With amidol 5 grains, sodium biborate, 50 grains, water 4 ounces. Liquid changed to a dark purple almost immediately. Image appeared in 30 seconds.

Part No. 3.—With amidol 5 grains, sodium acetate 50 grains, water 4 ounces. Liquid changed rapidly to a light brown. Image appeared in about a minute.

Part No. 4.—With amidol 5 grains, potassium ferrocyanide 50 grains, water 4 ounces. Liquid changed dark brown rapidly, but it asserted no developing action, and the image failed to appear, even after five minutes. A drachm of the five per cent. solution of sodium carbonate was then added to the developer, and in a minute the image began slowly to appear.

EXPERIMENT NO. 4.

Another sheet of bromide paper was exposed as before and divided into two parts. A solution of amidol in water was rendered alkaline with sodium carbonate and poured on one portion of the paper. In 30 seconds the image began to appear. The developer was now poured off, acetic acid was added to it drop by drop, until the solution tested acid, and this solution poured over the second portion of the paper. No image appeared, even after five minutes, showing that the acid had completely checked the development. Carbonate sodium was again added to the developer, and as soon as it reacted alkaline it was poured back on the paper, when in 45 seconds the image made its appearance.

EXPERIMENT NO. 5.

Supplementary to this a final experiment was made on another exposed sheet of bromide paper, and this divided into two parts:—

Part No. 1. received the half of a solution of amidol 10 grains, sodium sulphite 25 grains, water 4 ounces. Development began in 30 seconds.

Part No. 2. received the other half of the above solution, to which had been added 1 drachm of a 5 per cent. solution of sodium carbonate. The image made its appearance in 15 seconds, *one-half the* time.

EXPERIMENT NO. 6.

An experiment was lastly made to determine, if possible, what acid was in combination with the organic base. To a solution of amidol in water was added the usual reagent test solution of silver nitrate. A copious white flocculent precipitate separated, which in a few minutes began to change to a violet shade. This, when filtered off and well washed, responded to all the tests for silver chloride. The amidol of Hauff is, therefore, the hydrochlorate of the amido-phenol, and from the quantity of silver chloride separated the salt is evidently a highly acid one.

The amidol of Andriesen was next examined. Physically it was a crystalline powder of a lighter shade than that of Hauff—in fact almost white. It was much more slowly soluble in water than the Hauff amidol, the solution did not decompose as rapidly, and its reaction was not as strongly acid. Used as a developer, *per se*, in aqueous solution, it was found after a few minutes a faint image appeared, but this gained nothing in either detail or density, even after the developer had remained on the exposed film for 20 minutes. The addition, however, of a drachm of either of the solutions of sodium carbonate or sodium sulphite previously used, immediately started development, and it then progressed steadily and rapidly to good density. Its action with the phosphate acetate, and biborate of sodium was similiar to the preparation of Hauff, although the liquids changed to a greenish black colour instead of a reddish brown. The two articles are not therefore identical in every respect. To determine the acid forming the Andriesen amidol a simple solution of the latter in water was tested with barium chloride. A white precipitate was formed which responded to all the tests for barium sulphate, showing that the combination is probably a sulphate. The Hauff amidol gave no reaction with barium chloride.

The result of these experiments would lead to the conclusion that amidol is not, in any sense of the word, an *acid* developer. On the contrary, when *by itself* in solution *it fails to act*, and its acid reaction is simply a result of the method in which the di-amido-phenol is combined in order to insure stability. When an alkaline salt is added to partial neutralization, development commences. It increases rapidly in proportion to the quantity of salt employed, and seems to proceed equally well with other salts than sodium sulphite. Development also occurs with the use of alkaline carbonates and probably also with caustic alkalies, and the development is restrained by the addition of acid and accelerated by alkalies or their salts in the same manner as with the other organic alkaline developers. When sodium sulphite is employed it acts as an accelerator simply because the salt is an alkaline one. It is quickened when more sulphite is added, because the amount of alkali is increased, and this same quickening can be produced by another alkaline salt instead of the sodium sulphite. When a neutral salt is employed, as, for instance, potassium ferrocyanide, no action occurs until an alkaline salt is added. The only point in which, probably, amidol differs from either pyrogallol, eikonogen, hydrokinon, or para-amidol-phenol is in the fact that it is influenced by much weaker alkaline salts. Di-amidol-phenol is of itself an organic compound of probably extremely unstable character. To enable it to be used it must be in more permanent form, and for this reason it is placed on the market in the form of a combined salt. When exposed in solution to the action of light and air, oxygen is absorbed the solution changes colour, and the salt is decomposed. This same change takes place very rapidly, in fact immediately, with the alkalies and their weaker salts. The di-amido-phenol is probably also decomposed and the solution soon loses its virtue. In the case of sodium sulphite, and the reason why this salt is preferred, is because while it is alkaline enough to cause development, its oxygen-absorbing properties prevent decomposition of the amdol-phenol, and thus keep the solution clear and render it moderately permanent.

It remains to add a few words concerning the practical employment of amidol. The fact that the alkaline character of sodium sulphite promoted development would also lead to the supposition that it also produced a certain amount of decomposition of the amidol, and that a stock solution, made with sulphite according to the instructions of the manufacturers, would not be altogether a permanent one. The writer would therefore suggest that amidol be used dry and fresh in connection with a strong solution of sodium sulphite or it be dissolved in weak sulphurous acid either pure or as made by the regulation on formula of Cramer. (Sodium sulphite 1 drachm; sulphuric acid, 15 minims; water, 6 ounces.) A solution of amidol made according to the latter formula is, at this date of writing nearly four weeks old, and yet seems as active as when made.

As a developer the writer has not found amidol to be any faster than the other new organic developers, and thinks all such statements are largely relative, owing to the varying quantities of accelerators and restrainers employed by different experimenters, It requires the addition of a small proportion of bromide to obtain contrast, and then, although the image appears rapidly, it lacks density, and this follows quite as slowly as when eikonogen or hydrokinon are used. There seems to be, however, almost a total absence of fog, and the image when complete has good colour and full detail.

There is no doubt that the capacity of amidol as a developer, and the proper method of its use, are not as yet at all fully understood. It is undoubtedly a most potent reducing agent, and is influenced by much weaker alkaline agencies than any other organic developer yet known. With our present knowledge it therefore might well be placed at one end of the series of organic developers, as highest in sensitiveness to alkaline influences, while hydrokinon would probably stand at the other end of the list.

[We may add that these experiments are distinctly contradictory to Dr. Eder's and several other well known workers', besides our own. EDITOR, *A. P.*]

Apparatus.

THE QUEEN HAND-CAMERA.

MISS N. CROUCH has invented a hand-camera of very simple construction and small in size. It measures $8\frac{1}{2}$ by $4\frac{3}{4}$ by 6 in., and is covered with leather cloth. Plates in sheaths are inserted in the back of the camera, and kept up to register by a spiral spring. To change the plates, a knob is pressed on the top of the camera, and the exposed plate falls down on to a sliding board, which is then pulled by a lever out of the way, and the plate drops down into a well at the bottom of the camera. It is fitted with a single achromatic lens, and has a shutter with quadrant-shaped opening, passing in front, and actuated by a lever at the bottom of the camera, and the shutter never requires setting. The camera is very light, even when filled with plates, and cheap in price, viz., 15s. 6d. The manufacture of this camera is to be carried on at 122, Newington Butts, S.E.

MARION'S CARTRIDGES.

Marion and Co., of 22 and 23, Soho Square, have sent us samples of the new cartridges they are placing upon the market.

PYRO AND SODA DEVELOPER.

(Price 2s. 6d. per box of twelve.)

The favourite pyro-soda developer is put up by this firm in two glass tubes, one containing the pyro and the other carbonate of soda and sulphite. One cartridge of No. 1 and 2 is each dissolved in 5 oz. of water, and equal parts are mixed and applied to the plate. Having occasion to develop some plates this week, we have tried these and found them satisfactory, and they give practically no stain. For tourists and others, who like to be saved trouble, they will be of great service.

FIXING CARTRIDGES.

(Price 1s. 6d. per box of twelve.)

The same firm have also placed these on the market, and the contents of one of these little card tubes, dissolved in 5 oz. of water, form an acid fixing bath of the correct strength for plates, which tends not only to harden the film but also prevent staining.

GRAY'S ALUMINIUM STAND.

Mr. G. Gray, of 2, Adolphus Road, Finsbury Park, has shown us a new form of aluminium stand of exceeding lightness, a stand strong enough for half-plates, only weighing $1\frac{1}{2}$ lb. It is a three-fold stand, with a lower piece for regulating on uneven ground. For cyclists it is just the thing needed. Mr. Jonathan Fallowfield has some on sale, and will be pleased to show to any visitors.

Exhibitions.

SOCIETY.	ENTRIES CLOSE.	OPENS.	CLOSES.	ADDRESS OF SECRETARY.
Manchester Amateur Photographic Society	—	Mar. 21	Mar. 25	
Croydon Camera Club ...	—	April 5	April 8	T. D. Aldous, 37, St. Peter's Road, Croydon
National Photographic Exhibition, Crystal Palace ...	—	April 10	April 29	
Bolton Photographic Society	—	April 12	April 15	
Philadelphia (U.S.A.) Phot Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.
National Sportsman's Exhibition (Photo. Apparatus Section).	—	April 24	May 6	Royal Aquarium, Westminster.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, Wes Port, Arbroath, N.B

Societies' Notes.

MR. A. CLARKE, St. Andrew's Road, Huddersfield, is now the Secretary of the Huddersfield Naturalist and Photographic Society.

AT a meeting of amateur photographers held in the Public Hall on the 17th, it was resolved to form an amateur photographic society in East Grinstead. Mr. E. S. McKenzie, 30, High Street, was appointed Hon. Secretary pro tem., and Messrs. York, Muller, and Grayling as a temporary committee. It was arranged to call a meeting of amateur photographers in this neighbourhood on Tuesday, 28th inst., for the purpose of enrolling members and electing office-bearers.

SO great has been the demand, that a reprint has become necessary of the prospectus of the Croydon Photographic Exhibition, which opens on 5th prox. Those whom it concerns should note that Saturday is the last day for sending particulars of works that it is intended to exhibit. No entry forms are necessary to make the notification upon. On the four evenings during the run of the exhibition Messrs. B. Gay Wilkinson, T. M. Brownrigg, J. Gale, and John A. Hodges give special lantern displays. The Mayor of Croydon inaugurates the exhibition, which will also be well supplied with choral and instrumental musical performances.

BEVERLEY.—A meeting of amateurs, called by circular, was held at the Church Institute, Beverley, the other evening, for the purpose of considering the desirability of forming an association for the town and neighbourhood. The Rev. F. J. Hall was voted to the chair. After some discussion, in which it was stated that the number of amateurs locally was about fifty, and that an organisation for mutual benefit could be easily inaugurated, it was unanimously decided that a society under the title and designation of "The Beverley Photographic Society" be formed forthwith. It was also further agreed that the first field-day of the season should be held on Easter Monday to Bishop Burton. Any information, societies' rules, pamphlets, manufacturers' samples, will be gratefully received by the Hon. Secs. pro tem., Messrs. T. J. Morley and Albert Pickering, on behalf of the members.

THE Harringay Photo. Society will give a free lantern entertainment on 24th inst. at Emmanuel Church, Duckett Road, Harringay.

* * *

A lecture was given in the Temperance Hall, East Bridgford, Notts, on March 16th, by Mr. H. Pratt, the subject being "The Peaks and Dales of Derbyshire." The slides were kindly lent by the Editor of the AMATEUR PHOTOGRAPHER, and were much admired. The proceeds will be devoted to defraying a debt on the hall.

A Dark-room has been opened at the West Shandon House, The Hydropathic Establishment, Shandon, N.B.

The Cresco-Fylma Competition, which closes on April 11th, is worth the attention of all who desire to earn a little money easily. A prize of three guineas will be given for the best enlarged negative, and two guineas for the best enlarged transparency transferred to opal, both to be effected by the aid of Cresco-Fylma, which may be obtained from the Cresco-Fylma Company, Brighton Road, Surbiton.

Societies' Meetings.

Ashton.—The annual meeting was held on the 16th inst. The President, Dr. Hamilton, occupied the chair. Mr. G. H. Dean, Hon. Secretary, read the report, which stated that twenty-nine new members had joined the Society during the past year, making the total 120, or eleven more than last year. The library had been considerably augmented, through the gift of the late Mr. Basil Hall's collection, by his brother, Mr. T. B. Hall. The council hoped, in the course of a few weeks, to have the books arranged and ready for circulation amongst the members. During the season seven outings were arranged, but, owing to the inclemency of the weather, one was abandoned. Mr. R. T. Marsland, the Treasurer, presented the balance-sheet, showing the income to be £66 7s. 6d. The expenditure was £50 15s. 4d., leaving a balance to be carried forward of £15 12s. 2d. Dr. Hamilton was re-elected President, on the motion of Mr. Marsland, seconded by Major Bradley. Messrs. J. W. Kenworthy, C. Lord, Thos. Glazebrook, and Major Bradley were elected Vice-Presidents. Unfortunately for the society, Mr. Dean felt himself compelled through stress of work and through change of residence, which took him further away from the rooms, to resign the office he had held during the last two years. Mr. Marsland was elected Secretary, and Mr. Walter Leigh Treasurer. Mr. Wm. Chadwick was elected Librarian. The following were elected on the Committee:—Messrs. W. C. Brown, T. Chayne, Wm. Chadwick, W. Greenwood, J. Hutchinson, J. T. Lees, C. E. Redfern, and S. Woolley.

Birmingham.—On 14th inst. three sets of slides, kindly lent by the Liverpool A. P. A., entitled (1) "Illustrated Boston," (2) "In and Around Columbus," (3) "The White Mountains of New Hampshire," were shown on the screen, and ably described by Mr. Middleton, with the help of notes which accompanied them. Very interesting they were, showing old and new buildings, landmarks, and busy streets, while the third set were perhaps the more delightful pictorially. Fine mountains, streams, and wooded scenery evidently abound in this charming district.

Darlington.—The annual exhibition of competition work was held on Monday, the 13th inst., in the Mechanics' Institute. There was a good muster. After the different exhibits had been viewed, the Secretary was called upon to read the criticisms and remarks of the judge—Mr. J. P. Gibson, of Hexham—on each set sent in for competition, whose remarks will be of great benefit to the members as a guidance in their future work. The report concluded with the remark that, taken as a whole, the competition work was very creditable to the society. Below are the awards:—Photographs—Class 1, open to past prize takers, Mr. T. Howlett and Mr. E. Enser, B.A, tie for first prize, and are awarded prizes of equal value. Class 2, open to members who have not taken a previous prize, first prize, Mr. L. W. Williamson; second prize, Mr. Sidney C. Rudman. The prizes for the above classes are carbon enlargements executed by the celebrated firm of Messrs. Elliott and Son, Barnet, from negatives made by the successful competitors. Lantern slides—Class 3, open to past prize takers, first prize, Rev. C. G. Davis; second prize, Mr. T. Howlett. Class 4, open to members who have not taken a previous prize, first prize, Mr. Walter Hildreth; second prize, Mr. Wm. Wawn. The prizes for the lantern-slide classes consist of useful photographic apparatus. The remainder of the evening was pleasantly spent viewing on the screen a set of lantern slides from the 1892 Pall Mall Exhibition, many of which were greatly admired by those present.

Derby.—On 14th, usual monthly meeting, Mr. Keene presided. Five new members were elected—viz., Messrs. Watson, Birkinshaw, Langdon, White, and Watkin. A demonstration on the "Amidol developer" was given by Mr. Morgan, of London, which passed off very successfully. Votes of thanks to Messrs. Morgan and Keene were passed, this concluding the meeting.

Eastbourne.—Meeting on 15th inst., Amateur Photographer Prize Slides. Mrs. Clarke's figure studies greatly admired; also some of the breaking-wave pictures.

East London.—At the general meeting held, Mr. Stone (Vice-President) in the chair, two questions from the question box were read, viz., "Can a single combination lens be used for hand-camera work?" "In exposing, should the exposure be for the shadows or high lights?" They were satisfactorily answered by the Chairman and some other members. The pictures which had taken prizes at the last exhibition of the society were passed around and criticised by members; upon the whole, they were pronounced to be superior to those which have taken prizes in the first exhibition. It was proposed that they be suitably covered and placed in the library, to be loaned to members for reference. The Hon. Sec. reminded members that the Cheltenham Society's slides would be exhibited at the next meeting.

Edinburgh. — Mr. James Fairbairn lectured on "Edinburgh Slums" in the saloon of the Royal Hotel. The Rev. Dr. MacGregor presided, and there was a large attendance. Sixty photographs were exhibited with the aid of the lantern, including houses shortly to be pulled down under the Improvement Scheme, houses of historical interest, and groups of people who earn a scanty livelihood by work that the uninitiated would little dream of. The views and photographs were taken by Mr. Andrew H. Baird, 15, Lothian Street, by the aid of his Todd-Forret magnesium flash-lamp, a demonstration of which was given at the close of his lecture. It may be stated that some splendid photographs of the underground workings in the Cornish Tin Mines were obtained with the aid of this lamp by Mr. J. C. Burrow, photographer to H.R.H. the Prince of Wales, who strongly recommends its use.

Hackney.—On 14th inst., Mr. E. Puttock presiding, members' work shown from Messrs. Beckett and Dean. Question: "Is it advisable to back all plates taken out?" Reply: "Yes; it is a great advantage, especially when light is strong; in no case could it do harm." Question: "What is the most reliable backing?" Reply: "Caramel and burnt sienna, as per formula given last June." Mr. Nunn mentioned red blotting-paper, and Mr. Gosling carbonised manifold-paper as not bad substitutes. Mr. R. Beckett said that films were better than unbacked plates; but Mr. F. Houghton found no halation on films exposed last week one-sixth second. The Chairman then read a paper by Dr. Paul Jeserich, entitled, "Detection of Crime by Photography." Whilst the lecture was being read a series of slides was shown through the club lantern—as alluded to; these were taken from subjects forming criminal cases in Germany. Dr. P. Jeserich treated his subject under the heads of Hairs, Blood, and Forgeries. Hairs, he said, from the same individual were easily recognisable. Human hairs and blood were different from those of other mammals; he instanced cases where his evidence resulted in acquitting some people accused of murder and pointing suspicion on others, to which they ultimately confessed. Forgeries executed in different coloured inks, though the unassisted eye could not detect it, were photographed by his process (presumably coloured screens and colour-sensitive plates). They clearly showed the original handwriting faintly with the additions strongly contrasted. Spectra of blood were shown, which were apparently identical, urging as a strong point that no two substances give exactly the same spectra. In a short discussion which followed, Mr. Dean objected to the too dogmatic way in which the paper was written, claiming that some of Dr. Jeserich's assertions were stronger than the stated facts justified, and that he ought not to assume that human hairs from the same individual have the same size and the same shaped roots—that a cut hair grows from the middle of the *cut* end—that blood corpuscles from the various orders of the mammalia are so very dissimilar from one another in size—that no two spectra are the same. Mr. Dean quoted a reliable authority that the differences between the spectrum of red ink and that of blood, even under very high powers, are undiscernible. Slides from Messrs. Beckett, Hull, Smith, and Salmon were then put on the screen.

Harringay.—On 16th inst. Mr. Coghill occupied the chair. Mr. T. W. A. Ball gave a very instructive and able demonstration of "Retouching." The demonstrater showed how to reduce a very dense negative with spirit, how to prepare and apply the medium, and then proceeded to retouch a very dense negative with very great success, making a perfect negative from what had been a few minutes before an unrecognisable picture. One member was elected, and some of Taylor and Hobson's new lens fittings were shown by the Secretary.

Leicester.—At the meeting on the 8th, the President, Mr. J. Porritt, in the chair, two members were elected and three proposed. The details of arrangements for the forthcoming exhibition of the society, on the 22nd and 23rd inst., were considered, the hanging committee elected, the excursion committee also arranged, and various matters in connection with the exhibition received attention. After the business had been concluded, the President, Mr. J. Porritt, exhibited in operation a useful and economically-made enlarging apparatus for enlarging quarter, half, and whole negatives up to 15 by 12, which quite engaged the attention of the members present; and an enlargement, quarter to 15 by 12, by magnesium was successfully completed with this apparatus.

Lewes.—The members and friends of this society assembled in force at the Cliffe Parish Room on the 15th inst., and spent a most pleasant time, there being a splendid exhibition of pictures and lantern slides, and an attractive miscellaneous entertainment. The exhibition of pictures was a most creditable one, and comprised photographs taken by members of the society. Amongst the most prominent specimens lent by the members were those of Councillor Wightman, Messrs. E. J. Bedford, P. Morris, E. J. Baker (Hailsham), J. Tunks, F. W. Burgess (Ringmer), H. B. Constable, W. Young, T. H. Lyell, A. H. Corder, J. W. Robinson, and J. Farncombe. Mr. Baker lent some beautiful pictures from the remarkable terra-cotta panels of George Tinworth, and these were greatly admired. The exhibition of the *Photography* prize medal lantern slides was a very attractive feature of the evening's proceedings, and the excellent character of some of the pictures thrown on the screen gave unmistakable evidence of the very high standard of excellence which amateur photographers have attained in this interesting and fascinating art. The athletic pictures were much admired, and a considerable amount of skill must have been used in bringing such splendid specimens together. Mr. Wightman explained the various pictures. The lantern was ably manipulated by Mr. Carpenter. Subsequently there was an exhibition of lantern slides, in which specimens of Wilson's water and hoar frost studies, Gregory's types of the British army, Woodbury sepia-toned slides, and local slides by members of the Lewes Photographic Society were shown. The latter were very warmly received. The exhibition was open again on the 16th inst., when the AMATEUR PHOTOGRAPHER Prize Slides were shown, and greatly admired by all present, being considered one of the finest sets, if not the finest, ever shown in Lewes.

Louth.—The members' lantern slide exhibition took place on the 16th, the President (the Rev. J. M. Coates) in the chair. Mr. S. F. Clarke, L.D.S., gave descriptive and critical remarks on the exhibits, which also included the prize slides in the National Society's Competition. In the interval Mr. Clarke announced the result of the lantern competition. He said that the society, with the assistance of Mr. Mark Smith, had offered a silver medal, a bronze medal, and certificates for the best set of lantern slides by the members of the society, in order to encourage that class of work, but the result was just the reverse, only five out of eighty members entering. Mr. Hastings has not awarded either of the medals, and remarked that the slides sent in were only of a fair standard of excellence. He placed first Mr. A. Hutchinson; second, Mr. H. S. Forman; and third, Mr. E. H. Forman; the two former of whom would receive certificates. The President announced that the medals would be offered for the best set of pictures taken in the forthcoming summer outings.

Newcastle.—The monthly meeting was held on the 14th, Mr. M. Auty, Vice-President, in the chair. Messrs. E. G. Lee and J. Brown demonstrated the process of copying by artificial light, and exhibited numerous examples, as also did various members.

North Middlesex.—The second of the series of elementary technical classes was held on 15th inst., the subject being "Development." Mr. C. Beadle briefly explained the subject in hand before proceeding to the more practical part, in which he was assisted by Messrs. J. MacIntosh and A. J. Golding. The plates developed were exposed at a special outing held on 11th inst.; each beginner developed his own plates while the instructors stood by to show and explain as development proceeded. These classes are given (free of charge) to help beginners, and the attendances and attention paid to the instructors is very encouraging. The next will be held on Wednesday, April 12th, and consist of toning gelatino-chloride prints. The Secretary, Mr. G. Gosling, 13, Lausanne Road, Hornsey, will be pleased to hear from any gentleman wishing to attend.

Phot. Soc. G. B.—Ordinary meeting, March 14th, 1893, Capt. W. de W. Abney, C.B., President, in the chair. Six new members were elected, and it was announced that six more societies had been admitted to affiliation. A supplementary communication from Col. Waterhouse on Guaiacol was read. In consequence of domestic bereavement, Dr. Emerson's paper on "Naturalistic Photography" was read by Mr. T. R. Dallmeyer. In the course of the paper, which is not capable of being abstracted, Dr. Emerson gave the grounds upon which he had arrived at the conclusions set forth in his "Death of Naturalistic Photography." It was evident from the paper that since the publication of that pamphlet his views had not altered to any great extent. He concluded with a series of propositions to the effect that photography was divisible into "decorative" and "scientific;" it was not, and could not be art. Mr. T. Bolas thought the paper involved a great deal of thought, and that in some respects Dr. Emerson's phraseology was not easy of comprehension. Although it was impossible to discuss the paper adequately at the present time, it enabled those who had studied Dr. Emerson's previous remarks to understand the full bearing of his recantation. He appeared to have changed his fundamental views, but not his practical views, as to methods of working. The author had dealt with the difficult question as to whether the beautiful was objective or subjective. He (Mr. Bolas) thought Dr. Emerson's remark about the ideal of an artist changing during the progress of a work of art was of considerable interest as bearing on the subjective idea of the beautiful. He considered it hardly possible to fully understand the paper until it could be examined at leisure, but in the meantime there were a great many ideas which he thought quite new in the field of art criticism. Mr. Andrew Pringle was quite willing to believe that the paper was extremely able and pregnant with matter for discussion. He thought that the particular subject—the subject of photography in its relation to art—had been a very great deal thought of lately, and perhaps more discussed than was profitable. He thought he detected a certain amount of truisms as old as the hills, and a certain amount of extremely debatable matter. Mr. W. E. Debenham considered mathematical perspective the only true perspective, and thought an artist's idea of sharpness meant decision or harshness of outline. Perhaps some people not of Dr. Emerson's way of thinking might use his own words, "pretentious rubbish," and apply them to the paper. Rev. F. C. Lambert (a visitor) was not sure he understood all the paper; it wanted three months' careful study. Col. Gale was glad to find Dr. Emerson coming out of his shell again, although he regretted he still kept on comparing painters and photographers, for which he saw no necessity whatever. The President, in closing the discussion, described himself as a maker of "photographic maps." He took sharp photographs, and should continue to do so, and thought that although in that respect he was unfashionable now, it was possible the style he practised would one day be in fashion again. A vote of sympathy was passed with Dr. Emerson in his bereavement.

Phot. Soc. Ireland.—On the 10th inst. a meeting was held, Professor J. A. Scott being in the chair. The Hon. Sec., Mr. J. A. C. Ruthven, read an interesting account of a trip to the Highlands, in which he was accompanied by Mr. A. M. Geddis, and slides by both gentlemen were shown illustrative of the tour. Mr. Ruthven clearly showed, by the tone of his paper, that indifferent weather, though doubtless very trying on a pleasure trip, need not necessarily prevent much enjoyment being taken by enthusiastic photographers, nor many good effects being obtained even from plates exposed during the fall of rain.

Putney.—Ordinary meeting held, Dr. W. J. Sheppard in the chair. Mr. Henry Kimber, M.P., was elected a Vice-President, Mr. W. R. Few a member of council, and Mr. F. W. Thompson an ordinary member of the society. Mr. W. E. Debenham gave his lecture and demonstration on "Transparencies by the Carbon Process," this being one of the papers placed at the disposal of affiliated societies by the central committee. Mr. Debenham commenced by fully explaining the theory of the process, illustrating his remarks by diagrams drawn on the blackboard. He claimed that for lantern slides carbon transparencies were unbeaten, as the process gave great range of gradation, clearness in the high lights, and transparency in the shadows, and further that any colour could be obtained with absolute certainty; the process was also greatly used in the trade for reproducing negatives for enlargement, photogravure, etc., for which it had been found to be very suitable. The tissue might be prepared by the user without much difficulty, but amateurs would find it more convenient to buy it ready for sensitising, in which state it would keep for a long time. They could readily sensitise it themselves by immersion in a solution of bichromate of potash; this should be done shortly before use as the tissue will not keep many days when sensitised, even when precautions are taken to store it under the most favourable conditions. Mr. Debenham then proceeded to explain and demonstrate the method in detail, from the preparation of the tissue to the final transparency, giving many valuable hints of a practical nature, which were greatly appreciated by those present, who throughout followed Mr. Debenham's remarks with much interest, and at his invitation asked questions as the demonstration proceeded. It is almost needless to say that the whole of the process was brought fully and clearly before the members, both theoretically and practically; specimen transparencies and reproduced negatives illustrating the lecture were handed round, and the results fully bore out Mr. Debenham's claims for the beauty and utility of the process.

Shropshire.—Monthly meeting on 14th inst., the President (Mr. W. W. Naunton) in the chair, when the competition for photographs taken during last year was held. Mr. F. P. Cembrano, jun., was asked to award the prizes, and consented with one condition, that he should withhold the prize if the merit of the contribution did not satisfy him. The photographs were on view, and the slides were passed through the new club limelight lantern by Mr. J. L. Della Porta. Afterwards the judge's award was opened by the Chairman. For the best photograph taken within the county of Salop, Class 1, architecture, no award; Class 2, landscape, first, Mr. Wallace Heath; second, Mr. W. G. Preece. For the best set of six lantern slides from any negatives, first, withheld; second, Mr. Wallace Heath. There was a capital attendance of members, and at the close of the meeting samples of plates, opals, etc., sent by the Paget Prize Plate Company, Watford, were distributed.

South Manchester.—The usual monthly meeting was held on 6th inst., Mr. Wm. Linnell, Vice-Chairman, in the chair. Six gentlemen were elected members. The Hon. Secretary (Mr. M. W. Thompstone) read a paper on "The Relation of Art to Photography." The paper was illustrated by autotype reproductions of the works of several of the world's noted painters, kindly lent by the Autotype Company, London, and a collection of photographs produced by some of the best workers.

Southsea.—At the meeting held on the 15th inst., Major Wilkinson, R.E., passed through the lantern an exceptionally fine set of slides from negatives taken by him on two successive trips through Japan. The slides, while consisting for the most part of choice scenery, also illustrated vividly the mode of life in Japan, and formed a most interesting series. The first excursion of this society for 1893 takes place on Easter Monday, to Rogate, near Petersfield, and will, it is hoped, be the forerunner of others at intervals during the summer. The society has prepared a set of lantern slides, mainly of local scenery, for circulation among the affiliated societies.

Ulster and Belfast.—On the 13th inst. a combined meeting was held at the rooms of the latter. Mr. Wm. Swanston, F.G.S. (President of both societies) occupied the chair, and in opening the proceeding referred to the amalgamation, which he thought was a most desirable course to pursue when lectures, practical demonstrations, and lantern displays were given, the routine business being disposed of at special meetings of the respective societies. Mr. Jas. Stelfox, C.E., exhibited to the members the new tele-photographic lens by Dallmeyer, explaining its use in a very lucid manner, and showing a series of views taken with it and an ordinary long-focus lens, the difference in size being very remarkable. Prints and lantern-slides in the January and February competitions of the Camera Club were on view, and a splendid collection of lantern-slides, lent by the Manchester Y.M.C.A. Photographic Society, were shown through the lantern. In the competition instituted by the Ulster Society for the selection of a prize print for the year (a copy of the winning print being supplied to each member of the society), the bronze medal was given by the judges for a half-plate print on gelatino chloride paper, to Mr. J. McCleery for a study of sheep in Scarva Demesne, entitled "In Early Spring." The meeting was a great success, and very largely attended.

Uttoxeter.—This association held an exhibition and conversazione in the Town Hall on the 16th inst. There was a large number of excellent photographs and enlargements exhibited, all being the work of the members. Amongst the exhibitors were the Rev. C. F. Barnwell, Messrs. S. Bamford, F. Udale, A. Parker, R. T. Walker, R. T. A. Hardy, H. Holmes, H. F. Ford, F. Welby, H. Meynell, W. H. Smedley, W. Ainsworth, the Eastman Company, Messrs. Mavor and Co. Some of the work exhibited was quite equal to that of professionals. A 12 by 15 enlargement of "Haddon Hall," by Mr. W. H. Smedley, excited general admiration. Among photographic apparatus exhibited was an ingenious little camera, the invention and workmanship of one of the members, Mr. R. T. A. Walker. Vocal and instrumental music was contributed during the day, and in the evening there was a capital exhibition of lantern slides, the work of the following members:—R. T. Walker, R. T. A. Hardy, the Rev. C. F. Barnwell, S. Bamford, A. Parker, F. Udale, H. Meynell, H. Holmes, and C. G. Wallis. Refreshments were provided during the evening, and the exhibition created much interest even among persons who are not disciples of the "black art." The whole of the arrangements were admirably carried out by the Hon. Secretary, Mr. R. T. Walker.

West London.—On the 14th inst. Messrs. Hodges and Horton read a paper on the "Processes applicable to lantern slides, and hints on the management of the lantern." Omitting the first part of the subject as likely to occupy too much time, the authors proceeded to enumerate the optical and other desiderata of a good lantern, and after reviewing the history of lantern illuminants and dwelling briefly upon the various forms of oil lamps, including the improved lamp of Stock, they proceeded to describe in detail the various types of lime-light appliance, including the oxy-spirit, blow-through, mixed-jet, and oxy-ether, and to show samples of all but the last in operation. The practical part of the paper was notable for the interesting series of comparisons instituted between discs thrown on the screen from two lanterns placed side by side employing in succession a four-wick oil lamp of ordinary make, a Stock lamp, an oxy-spirit jet, a blow-through jet, and lastly a mixed gas jet. Each illuminant taken in the order enumerated above, gave a distinct advance in light-giving power as well as in whiteness of the light. At the conclusion an interesting series of slides belonging to Mr. Le Marchand, made by the albumen process, were shown.

* * *

Out-door Groups.—To combine harmoniously the many different natures which make up a group without hurting someone's feelings requires tact. In three minutes one ought to know pretty nearly who wants to sit beside whom. To place persons where they do not want to be, nearly always makes them look gloomy. Keep gloom out of your groups by all means. Don't put very dark persons where they will look darker, or light ones where they will look lighter. Arrange what light subjects you may have where they will look the best and help light up the dark spots most. Contrast gives light to a picture. Above all, do not plant your subjects in stiff rows like a pickle exhibit. Give rather a rough and tumble arrangement to your group, without going to extremes, which will give it an air of real comfort, ease and harmony.—*F. W. Brock, Wilson's "Photographic Magazine,"* Feb. 1893.

Lithium Toning Bath for Gelatino-Chloride Prints. — For delicate half-tones and rich shadows, when used with gelatino-chloride printing paper, the following bath is recommended—

Carbonate of lithium	1 drachm.
Water	8 oz.
Chloride of gold	2 gr.

The free silver must be eliminated from the prints by washing before toning, and the toning bath used as soon as possible after preparation.—*Wilson's "Photographic Magazine,"* Feb., 1893.

A Remedy for Halation.—Halation is said to be prevented by coating the back of the plate with a plain collodion, coloured with aurine prepared in the following manner—

Aurine	5
Alcohol	100
Plain collodion at 2 per 100	300
Castor oil	4

Before development, the collodion is wiped out with a rag imbued with a little alcohol.—*Photographic Times*, Dec. 30th, 1892.

Transfers with Collodion Papers.—Almost any of the collodion papers can be printed, toned, and fixed as usual, and then when dropped into boiling water the film will peel off the paper within a couple of minutes. For some purposes it can at once be placed on its support, and the operation is completed; but in the case of watch crystals, or where the support is to give the background tint, then it is necessary to rub off the paper coating which adheres to the collodion. This can be done by first laying the print face down on a glass and then rubbing it gently with a tuft of cotton wet with hot water; this treatment brings the print as clear as a wet-plate transparency, and it can now be transferred to any surface. It is found best, however, to coat the support with a comparatively strong substratum of gelatine, and allow it to dry; then when the transfer is to be made the prepared support is slipped into clean water under the cleaned print; this allows the substratum to soak up as much water as it will, and if air bubbles are pressed out from under the print there is perfect contact between the film and its support.—*R. W. Harrison, in "Photographic Times,"* Jan. 20th, 1893.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

Rules.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume.*
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer Questions by post.

QUERIES.

5990. **Bicycle Carrier.**—Can any reader recommend a carrier to carry half-plate apparatus on bicycle? I have not yet been able to get one that does not slip with the motion of the machine.—Falcon.

5991. **Shutter.**—Can anyone tell me of a time and instantaneous shutter that can be fixed to a No. 3 (Junior) Kodak without interfering with any of its existing mechanism?—A. A E.

5992. **Lantern Slide Developer.**—Wanted, a reliable one, to suit any plate.—Fen Doctor.

5993. **Norway.**—Shall be much obliged by hints as to exposures in June and July; also as to plates (or films). Can I get them there? I use Lancaster's half-plate extra-special camera, R.R. lens, also W.A. Would hand-camera be more useful? Tips from previous visitors much valued.—Fen Doctor. (Address with Editor).

5994. **Depth of Focus.**—Can any of your readers explain how I obtain the depth of focus?—Dina, K. L.

5995. **Spotting-Out.**—Which is the best colour to se to touch up spots on a negative when the spots are in a most prominent position?—Kono.

5996. **Mounts.**—What is the size in inches of a Boudoir mount and Minette mount?—L. C. A. P. P.

5997. **Clearing Bath.**—If anyone can recommend a better clearing bath than the following, I should like to have the formula, viz.—

Alum	2 oz.
Citric acid	1 ,,
Water	20 ,,

—R. H.

5998. **Bellows Cracking.** — My bellows to my camera are beginning to crack. How can I prevent further damage?—G. Roma.

5999. **Uranium Bath.**—Wanted, particulars for a good uranium toning bath for Solio and P.O.P. papers.—Strand.

6000. **Lens.**—Is a Lancaster's quarter-plate instantograph lens suitable for a hand-camera, or could any of your readers suggest a good and cheap one?—Photo-phono.

6001. **Studio Building.**—Will any readers give me an idea how much it would cost to fit up a studio in a small coast town where a good class of trade would be done? (Capital limited to £150). Also where I would get a design for a studio? Would Taylor's 8 by 5 R.R. lens be suitable for studio work? An answer through the medium of your widely-read paper will much oblige.—Rothesay.

6002. **Changing Bag.**—Could any reader write a short article on how to make a cheap changing bag?—Enthusiast.

ANSWERS.

5976. **Roll Holders and Roll Holders and Cameras Combined.**— Upon application at the Patent Office in Southampton Buildings, W.C., W. D. S. will find that he will be able to see all the patents and their respective dates.—Montrose.

5977. **Instantaneous.** — There are no special cameras for the work mentioned in your query, but Lancaster or Adams will provide you with all anyone can wish for for any work. As regards the shutter, the Thornton-Pickard is the best and simplest.—Montrose.

5977. **Instantaneous.**— No quarter-plate camera that will do what you want is sold ready fitted with lens, etc. To produce an image 3 inches in length of a kitten under the conditions you specify, you would require to be fitted out as follows:—

Quarter-plate camera, adjusted by moving the back, say "International" Lancaster's	£1 12 6
Euryscope lens of 9 in. focus, *f*/6	4 14 6
Focal plane shutter	2 5 0
Total	£8 12 0

The kitten would have to be 3 ft. distant from the lens, whose focus would be lengthened to 12 in., and working aperture reduced to *f*/8. The Editorial Leader on pages 174-5 is a complete answer to your query as to the best shutter to use.—T. C.

5978. **Varnishing.**—Place the negative in warm methylated spirit, and gently rub off the varnish with a tuft of cotton wool.—P.

5981. **Westminster Abbey.** — Using Ilford iso. medium plates I found fifteen minutes about the right exposure (cloudy day) for the nave, at 1.30 p.m., this month, using a R.R., stop *f*/22. Do not forget to back your plates.—Eclipse.

5981. **Westminster Abbey.**—The light here is very poor, both in quantity and quality. The atmosphere also is generally thick with fog and smoke, and laden with dust kicked up by the numerous visitors. Photography is therefore difficult. I should use an Edwards' instantaneous isochromatic film, and give not less than an hour's exposure on a bright day. On a dull one I should think it was nearly hopeless.—W. H. H.

5981. **Westminster Abbey.**—A rapid plate. The exposure depends upon the intensity of the light, stop used, etc.—P.

5982. **Reducing Negatives.**—Dissolve 30 gr. of ferric chloride in 3 oz. of water. Immerse the plate in this, when reduction will take place; then fix in the ordinary way. Be careful not to reduce the plate too much, as the reduction continues to a certain extent in the fixing bath.—P.

5982. **Reducing Negatives.**—Immerse the negative in a solution of—

Copper sulphate (blue-stone)	4 oz.
Alum	4 ,,
Common salt	8 ,,
Water	1 quart

When sufficiently reduced, wash in plain salt and water, then in water alone, and set aside to dry; or, a solution of hyposulphite of soda of such a strength as is commonly used for the fixing bath is made up, as also a saturated solution of red prussiate of potash. Twenty or thirty drops of this latter solution are dropped into each pint of hypo solution, and the negative to be reduced is placed in the mixture. Almost immediately a slight but quite perceptible reduction of density will be seen. The action, however, very soon ceases, and if a greater amount of reduction be desired, a few more drops of the red prussiate solution are added, and this operation is repeated till the desired effect is produced, when the negative is thoroughly washed and dried.—D. H. W. Preedy.

5982. **Reducing Negatives.**—

Ferric chloride	1 dram.
Water	1 oz.

Immerse the negative in the above solution, and then return it to the fixing bath until sufficiently reduced. —Eclipse.

5982. **Reducing Negatives.**—The process is very simple. The best is to add 1 oz. of ferricyanide of potassium to 9 oz. of water, put the negative in the dish and cover it with water, and pour 1 drachm of the above into your measure, and pour the water from the dish into the measure and back on to the plate; about 2 oz. of water will do for half-plate, and so on in proportion. When reduced to the required density, well wash and dry.—Montrose.

5983. **Winchester Cathedral.**—I photographed here last August, and heard nothing of any charge. I think you have been misinformed. A politely-worded note to the Dean, enclosing a stamped addressed envelope, will obtain a most courteous reply, and permission to photograph anything except the Great Screen, which is the monopoly of a local professional. Perhaps it is this gentleman who charges the guinea for permission to photograph that magnificent work, of which he has bought the sole copyright. But the rest of the cathedral, which is full of objects of interest, is quite free.—W. H. H,

5984. **Mending Negative.**—I should think the author of this query cannot do better than to soak the pieces of the negative in Cresco-Fylma till the film is removed from the glass, and then put the film on another piece of glass.—Montrose.

5984. **Mending Negative.**—The following is from "The Dictionary":—Lay the negative, film downward, upon a perfectly level surface, carefully place the fractured pieces together, and apply strips of gummed paper along the edges of the negative. When thoroughly dry, turn the negative over, and apply some strips of paper along the edge on the film side, allow it to thoroughly dry, and varnish the film. To print from broken negatives, suspend the frames from an ordinary roasting jack, or place the frame at the bottom of a box without a lid about 18 in deep.—P.

5985. **Black Varnish.**—Grind some lamp or ivory black into a paste with japanner's gold size.—P.

5985 **Black Varnish.**—Any dealer will supply you with this, or a very good dead black can be made by grinding lamp-black into a paste with japanner's gold size. Or another method is the best indian ink; this will answer the purpose very well. Either of these will give very satisfactory results.—Montrose.

5985. **Black Varnish.**—Take 2 gr. of lamp-black, put it into any smooth, shallow dish, such as a saucer or small butter plate, add a little gold size, and thoroughly mix the two together. Just enough gold size should be used as will hold the lamp-black together, about three drops, of such size as may be had by dipping the point of a lead pencil about half an inch into the gold size, will be found right for the above quantity of lamp-black. It should be added a drop at a time, however. After the lamp-black and size are thoroughly mixed and worked, add twenty-four drops of turpentine, and again mix and work. It is then ready for use. Apply it thin with a camel-hair brush.—D. H. W. Preedy.

5986. **Dark-Room.**—I think M. Cheney would find that a little stove would keep it dry, not to say anything of the warmth.—D. H. W. Preedy.

5986. **Dark-room.**—You might get your dark-room dry by continually burning an oil stove in the room.—Montrose.

5988. **Fixing and Toning Prints.**—On what paper are your prints? If on Eastman's Solio and Ilford P.O.P. the baths given with the paper, cannot be bettered; if for albumenised paper the following gives good tones, although these combined baths cannot be relied upon so much as the separate:—

Chloride of gold	1 gr.
Phosphate of soda	15 ,,
Sulphocyanide of ammonium	25 ,,
Hyposulphite of soda	240 ,,
Water	2 oz.

The gold is best dissolved separately in a small quantity of water, and then added to the other chemicals.—Montrose.

5988. **Fixing and Toning Prints.**—There are a number of formulæ which "Campania" requires. One is that which is recommended by Dr. Liesegang:—

Solution A.

Chloride of gold	15 gr.
Distilled water	3 oz.

Solution B.

Ammonium sulphocyanide	60 gr.
Common salt	240 ,,
Alum	120 ,,
Hyposulphite of soda	2 oz.
Distilled water	12 ,,

Allow solution B to stand for at least eight days, and then filter. To make the toning bath, pour solution A, 7 parts, into solution B, 60 parts, and add 40 parts of old used combined toning and fixing bath. This bath gives the prints in ten minutes a red colour, in fifteen minutes it tones to a splendid brown, and in twenty minutes to a brownish violet. The bath acts quicker if the prints are taken out after five minutes and laid on a clean glass slab. As soon as the desired tone is reached, place them in a salt and water bath. Another way:—

Chloride of gold	6 gr.
Nitrate of lead	3 ,,
Hyposulphite of soda	3 oz.
Distilled water	20 ,,

Put the prints direct into the toning bath without washing. Another formula:—

Chloride of gold	6 gr.
Tungstate of soda	60 ,,
Ammonium sulphocyanide	100 ,,
Hyposulphite of soda	960 ,,
Distilled water, to make	8 oz.

Dissolve the salts in half the water made hot, and make the solution measure 8 oz. by adding more water, then add the gold.—D. H. W. Preedy.

5989. **Light Tripod.**—These can be seen and had at any of the leading photographic dealers and manufacturers—for instance, Adams, Lancaster, Fallowfield, Watson, and Ross. Either of them, I am sure, will supply as good an article as anyone can wish for. —Montrose.

5989. **Light Tripod.**—I do not know the length of "Liverpool's" photographic experience, but I soon discovered that a very light tripod is a mistake, and steadiness of more importance than a pound or so of weight. Lancaster's four-fold stand ought to suit him. It closes to a little over 12 in. in length, is very light, and for so light a stand wonderfully steady.—W. H. H.

5989 **Light Tripod.**—In answer to "Liverpool's" enquiry, he can obtain a four-fold aluminium tripod at Fallowfield's, 146, Charing Cross Road, the very thing he wants. It measures, when folded, 16½ by 2⅛ by 1⅛ in., and weighs 1½ lb.—X.

QUERIES UNANSWERED.

March 17.—Nos. 5979, 5980, 5987.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated but we should be very grateful if those requiring advice would send their letters to us* before Tuesday morning's *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—Ed. Am. Phot.

J. W.—Process blocks are usually prepared from prints by photographing them through a ruled screen to the required size. A zinc or copper plate is then coated with sensitive bitumen, dried and exposed under the negative, developed with turpentine, and etched with acid. The process requires, of course, considerable practice, but is not beyond the reach of an amateur. W. T. Wilkinson's "Photo-Lithography and Photo Engraving," price 5s 6d., post free, from our publishers, is the best book.

Beatie-Marie.—You cannot do better than obtain the hand-camera you name, and if fitted with a Zeiss lens, Series III., of 5 in. focus, you would have a camera which would answer all requirements. An exhibition opens at the Crystal Palace on April 10th. We believe the cost of an electric dark-room lamp with battery complete varies from 25s. to 40s. If you mean the lamp only, the best thing to do is to buy an ordinary incandescent (Swan) lamp and dip it into ruby or non-actinic varnish. Please address letters to the Editor, not to individuals.

P. T. O.—The formula for the "Nys" plate is—

A.

Neutral oxalate of potash	9 oz.
Water	30 ,,

B.

Sulphate of iron	9 oz.
Water	30 ,,
Sulphuric acid	1 drop

Add one part of B to three parts of C, and bromide if required. The formula for the Derby rapid plates is—

A.

Saturated solution of washing soda.

B.

Saturated solution of sodium sulphite.

C.

Bromide of potassium	20 gr.
Water	1 oz.

For use—

Sol. A	10 dram.
Sol. B	6 ,,
Sol. C	3 to 4 drops.

Add 2 gr. of dry pyro to each ounce. If the pyro is preferred as a stock solution, make as follows:—

Saturated solution of sodium sulphite	36 oz.
Sulphuric acid	36 drops
Pyro	2 dram.

Use in the same proportions as above.

E. P. B.—Both slides are good, technically, and show up well on the screen.

A. Millar.—The cause of yellowness in bromide prints may be (*a*) too much iron and too little oxalate, (*b*) not sufficient use of the clearing bath, or using the same too often; (*c*) not washing well between clearing and fixing; (*d*) washing between developing and clearing. Send us up a print or two to see.

W. J.—Parts means grains, ounces, pounds, or hundredweights. In the formulæ given, you can take them to mean grains.

Beginner.—We are afraid we cannot elucidate the mystery in any way. The explanation of the makers is both feasible and possible.

Fair Copy.—The approximate exposure would be about 7 minutes. In developing try for rather thin, soft negatives, so as not to get your whites blocked.

T. Harper.—(1) "Black and white" means just picked out with crayon. "Monochrome" means tinted in monochrome. "Solid oils," painted all over. It is difficult to say what we should do without seeing them, but, speaking offhand, we should not resort to above, but soak the enlargements in water, bleach with mercuric chloride, and redevelop with ferrous-oxalate or hydroquinone. Send one up if you like. (2) You do not state whether you want to prepare the chloride yourself or buy it; if the latter purchase a well-known brand, such as Johnson's, break the tube into 15 drachms of distilled water, add 5 drops of pure hydrochloric acid, and keep in the dark. When required for use, measure out the given quantity, add sufficient chalk or carbonate of soda to neutralise, and use. If you want to make it yourself obtain an Australian sovereign or half sovereign, place in a little evaporating dish, and cover with a mixture of nitric acid 2 drachms, hydrochloric acid 8 drachms, gently heat the mixture in a sand or water bath till the coin is dissolved, continue to heat a little longer, and make the resulting solution measure 178 drachms for a sovereign or 89 drachms for half sovereign, by adding distilled water, keep in the dark and neutralise before use, as directed above.

Henri Sylvestri.—We must know the equivalent focus of lens before we can answer your query.

Rufus.—(1) There is no reason why a cloud negative taken under the conditions you name should not be printed through the support. (2) You can print through the glass of a cloud negative, but obviously the clouds will not be sharp.

Meniscus.—You are perfectly right, cæteris paribus—the rebound shutter merely means an ordinary drop, only the opening is from the bottom, and the closure from the top, whereas in the drop the opening and closing are from the top.

Lost in the Country.—(1) Yes, certainly, the lens would be worth half-price. (2) We should try Amidol, followed, after well washing, with pyro and soda. (3) The angle included by lenses of different foci is inversely proportional to their focal lengths; thus if a 6 in, includes 1, a 4 in. will include 1⅓, and a 3 in. 2. (4) The want of density may be due to over-exposure, under exposure, or not developing long enough; we could not say positively without seeing negatives. (5) Lyonel Clarke's "Development." published by Hazell, Watson, and Viney. Price 1s.

G. R.—Place your prints in a solution of chloride of gold, or in an old combined toning and fixing bath; this will get you out of your trouble.

Amateur.—A good formula is :—

Water	4 oz.
Hyposulphite	½ oz.
Sulphocyanide of ammonium	50 gr.
Nitrate of lead	20 ,,
Alum	20 ,,

Dissolve the hypo, add the sulphocyanide, then the alum, and finally the lead, previously dissolved in a little water. Heat to 50 deg. C. for ten minutes, and allow to settle, and add—

Chloride of gold	2 gr.
Water	2 dram.

Collodio-chloride prints need not be washed first, gelatino-chloride prints should be.

H. I. C.—Use an isochromatic plate; give a long exposure, and use the normal developer. A good outdoor light would be the best. You would find that by using above plates a lot of your trouble would disappear.

Trix.—(1) Cover the slot of lens with an india-rubber band when not using. When stops are in this is unnecessary. (2) *f*/32, and about 3 sec. (3) The stops are marked with numbers obtained by dividing the equivalent focus by the diameter. Supposing your lens to be of 8 in. focus, and stop has diameter of ½ in. this will be *f*/16. The exposure is proportional to the square of these *f*/x numbers. For instance—

$8^2 = 64$, the exposure would be then 1
$16^2 = 256$,, ,, ,, 4
$32^2 = 1,024$,, ,, ,, 16

Always focus with full aperture, and insert the stops one after the other till you have sufficiently sharp definition all over the screen to satisfy you.

M. E. D—We should use a 15 by 12 and make the exposure about noon, using instantaneous isochromatic plates. Open every door you can. Anyhow you can but try and effect a compromise.

J. McMurdo.—The device of shifting lens will answer, but of course it precludes your taking any moving object. The covering of half the plate will also answer, but we should advise you to wait and consider the difficulty of giving two plates exactly the same exposure and getting negatives of exactly the same character.

Suffolk Tyro.—Is not the fault want of rigidity in the stand and not in the camera? We should say so, but could not advise without seeing both camera and stand. Have you no dealer or photographic friend in Lowestoft to apply to?

Wm. Bullock.—Your lens is a periscopic and is not corrected for the chemical rays; but we will examine and write you.

G. B.—(1) Yes; you have understood us aright. (2) Probably your light is not properly centered. You must shift the light up and down, or from side to side, till the screen is evenly illuminated. No. 1 is slightly under-exposed, and No. 2 over exposed. Focus in the camera on the ground glass, not on a board. Always glad to help you.

H. M. S.—(1) Your negatives are far too thin, and want intensifying, and then they would give prints with pure whites. Probably you are using too strong an accelerator, which causes the plates to fog or go black. (2) The extra addition of citric acid has not much effect on the staining, but if you like to try you need not add more bromide. (3) About 1-20th sec. for sea, and 1-10th for landscapes.

E. Mears.—Letter by post.

T. Hargreaves.—(1) Both negatives look rather flat, as though fogged in developing. No. 1 is certainly so fogged. (2) So far as we can judge, the sensitised paper is good. (3) Both prints are much over-printed; your negatives want intensifying. (4) For all-round work we still advise pyro. (5) You can please yourself If your camera will rack out far enough, use the single lens. (6) Isochromatic plates may be used for any work that an ordinary plate is used for. (7) Yes, the paper is suitable for all-round work. (8) Dirty skies are generally due to want of density in negative. Do you want prints and negatives back? If so, send stamps.

H. Rookeley.—The rapidities are stated to be—Eastman 1, Edwards 2, Ilford 2.

Hereford Boy,—You must let us know how much you are prepared to spend and then we can help you.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence*** *Every additional* ***three words, one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one word****; compound words count as* ***two words.****)*

DEPOSITS.—*money for goods forwarded on approval may be deposited with the Publishers of the* Amateur Photographer, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

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PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* Amateur Photographer, *1, Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* Editor, Amateur Photographer, *1, Creed Lane, London, E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.****, or a commission of* ***2½ per cent.****, upon the sale price of the apparatus.*

Background.—Avery 4ft. by 4ft. by 2ft., nearly new; exchange anything photographic. — W., 53, Chalk Farm Road, London.

Cameras, etc.—Quarter-plate brass-bound Instantograph (camera only) and one dark slide, new condition, 18s. 6d.—Guthrie, Bonnington, Edinburgh.

Billicliffe's half-plate and full-plate cameras, long focus, double extension, leather bellows, rising fronts, swing and reversing backs, all movements, one and two dark slides respectively, with each, and tripods, without lenses, new, excellent finish; half-plate cost £7 5s., price £5 10s.; full-plate cost £8, price £7.—Payne, 58, Long Row, Nottingham.

Optimus half-plate wide-angle camera, stand, three slides, and spirit level, as new, cost £9 8s., lowest £6 10s.—Oliver, South Tower, Crystal Palace.

Cameras, Lenses, etc. — Whole-plate Watson's Premier camera, four double backs, bags, etc., 8½ by 6½ Ross' R.S. lens, equal to new, £15.—H., 55, Val Plaisant, Jersey.

Quarter-plate Box camera, with lens and stand, for sale, complete, 25s.—Address, W. T. Taylor, Earlswood Asylum, Red Hill, Surrey.

Half-plate camera, R.R. lens, Lancaster's half W.A.R. lens, iris (new), Kershaw shutter, Chadwick's tripod (new), view finder, slides, case, etc., £7, or offers; also vols. 4 to 11 Amateur Photographer, bound half calf, and vols. 12 to 16 complete, unbound, and first 4 vols. "Camera," bound half calf. Offers?—No. 389, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Hand-cameras, etc.—Kodak No. 3, about 30 exposures, equal new, £5 15s., lowest.—Bygrave, 13, Canterbury Road, Brixton, S.W.

Frena for sale, as new, leather case, book of instructions. Can be seen in London or Croydon.—G., 60, Canterbury Road, W. Croydon.

Kodak No. 3 regular, perfect, and unopened roll of films. What offers?—Hodgson, Windsor Street, Nottingham.

Lancaster's Omnigraph, takes six quarter-plates, new last summer, cost 21s., price 13s.—No. 388, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Lancaster's Omnigraph hand-camera, with changing box, nearly new, 14s., or exchange for 5 by 4 R.R. lens.—H. Wilson, 4, Orchard Place, Streatham Common, Surrey.

Adams' Ideal hand-camera, Wray lens, fixed focus, in good condition, £5.—W. G. Henderson, 299, Edge Lane, Liverpool.

No. 2 Kodak, cost £7, new last season, complete, loaded excepting two exposures. What cash offers?—L. M., 14, Market Place, Faversham.

Quarter-plate reflector-focussing hand-camera, with Eastman rollholder, no lens, takes 6¾ by 7¾ focus lens, 50s.; Optimus 8in. condenser, as new, 50s., or exchange for 5in. and Optimus 27s. projecting lens, in good condition.—W. G. Perks, Cleveland, Walthamstow.

5 by 4 Swinden and Earp hand-camera, takes sheaths or paper-backed plates, iris diaphragm, fitted with six dozen plates, £6; Crouch 15in. portable symmetrical lens, only used once, cost £8 8s., price £5 5s.; also 12in. ditto. cost £7 7s., price £4 4s.—Lieut. Luard, R.N. College, Greenwich.

Adams' Ideal, new, waterproof case, faultless, £5 10s.—55, Great Sutton Street, E.C.

Adams' Ideal hand-camera, takes 12 plates, R.R. lens, good condition, £3 15s.—Spall, 7, Wyburn Villas, Surbiton, Surrey.

Lanterns, etc.—Lantern. First-rate biunial lantern by Watson and Sons, 4in. compound condenser, two pairs objectives in quick changing mounts, 6in. and 8in. focus, one pair blow-through and one pair mixed jets, Beard's self-centering carriers, etc., etc. The whole packed in baize-lined pine case (brass bound), with drawer for tools, etc. A splendid instrument. May be seen at 215, Shaftesbury Avenue, London, W.C., any day. Price £30, or open to a reasonable offer.

Optimus lantern, 4in. condenser, three-wick lamp, and lens, 15s.—B., 67, Oakdale Road, Leytonstone.

Lenses, etc.—Rapid rectilinear lens, half-plate, fine definition. fitted iris stops, works *f*/8, covers well to edges, moveable hood, finest condition, guaranteed; approval.—Mrs. Bell, 25, Nelson Road, Clyde Road, Tottenham.

Half-plate Lancaster's Instantograph lens and instantaneous shutter, almost new, 17s. 6d., cost 30s.—Smith, 25, Clarendon Street, Londonderry.

Lerebours' whole-plate portrait lens, No. 3,655, warranted, not scratched, price 35s., or exchange to 50s. in 12 by 10 slides, backgrounds, or accessories.—T. Hargreave, Bolton-by-Bolland, Clitheroe.

Ross' No. 3 portable symmetrical lens, cost 70s., price 50s.—Main, 75, George Street, Aberdeen.

Lancaster's half-plate Instantograph lens and shutter, iris diaphragms, cost 35s., 20s.; Lancaster's half-plate landscape lens, cost 15s., 10s.; half-plate portrait lens, 40s.; 5½in. burnisher, 6s.; all in first-class condition.—Chas. H. Medlock, 120, West End Lane, West Hampstead.

Two Ross' 6in. P.S. lenses, paired for stereo work, £6 10s. the pair, or separately, £3 10s. each.—Francke, St. Saviour's Road, Jersey.

Whole-plate R.R. lens by Chambers, with iris, £2 10s.; Ross portable symmetrical, 5in., No. 42,423, £2 5s.—Dollery, 57, Charing Cross, S.W.

Negatives.—Twenty-eight quarter-plate negatives of Torquay and neighbourhood, 25s., or 1s. each.—John Stabb, 154, Queen's Road, Bayswater.

Print Washer.—Marion's print washer, 2ft. diameter, cost 30s., take 15s., nearly new, carriage extra.—Creasy, Faircross, Springfield, Chelmsford.

Sets. — Half-plate Underwood Instanto camera, double extension leather bellows, latest movements, Sands and Hunter's R.R. lens, splendid definition, Waterhouse stops, two double dark slides, quarter carrier, tripod, Lancaster's revolving head, two drop shutters, trays, bottles, printing frames, etc, etc., the whole in capital condition, £5.—E. C. P., 47, Dagnall Park, South Norwood.

Lancaster's quarter-plate special brass-bound Instantograph, double dark slide, lens, See Saw shutter, leather case, perfect, 40s.—Jardine, Riverside, Kew, Surrey.

Instantograph, quarter-plate, lens, shutter, stand, four slides, good condition, 32s. 6d.—F. Holmes, Nelson Villa, 68, Clayton Road, Peckham.

For sale, photographic apparatus, consisting of rapid rectilinear lens, Optimus 9 by 7, quite new, with pneumatic shutter to match; Optimus, large camera, with three double and one single dark slides; carriers, from 8½ by 6½ to quarter size, fitted to each carrier, in very good condition, printing frames, and a few chemicals, also a splendid enlarging apparatus with large lens, two large dishes, and two large porcelain dishes, enlarge up to 18 by 20, the lot cost over £20, will sell for £12; dark-room lamp and several sundries; will answer any enquiries.—Address, Vicar, Glentworth, Lincoln.

Half-plate Lancaster's Instantograph (no lens), ash tripod, four double slides, leather case, splendid condition, quarter-plate pneumatic drop shutter, china dishes, want money, deposit, bargain, 63s.—Quinton, Wimbledon.

Scott's patent half-plate double extension camera, rising front, swing-back, three double dark slides, patent catch to hold slides and beautifully made, cost £3 10s.; one Ross' R.S. lens, 6 by 5, cost £5; one Perken, Son, and Rayment W.A. 7 by 5, cost £1 12s. 6d.; Place's shutter fitting the rapid symmetrical, cost 7s. 6d.; and four carriers for quarter-plate, all in waterproof case, costing 15s.; splendid camera and thoroughly well made. What offers, on the deposit system.—H. Marsden, Myddleton House, Ashbourne.

Thornton-Pickard Ruby camera, half-plate, time and instantaneous shutter, three double slides, turntable, tripod, limp canvas bag. Wray's R.R., iris, £9; without lens, £6.—Howard, 16, Perryn Road, Acton.

Half-plate camera (Thornton-Pickard Tourist), all motions, turntable, and tripod, Beck's 9in. focus R.R. lens, iris diaphragm, and Dale 6in. focus W.A. R R. lens, three backs, Furnell shutter, case, etc., cost £20, good as new: whole-plate adaptor, fit any half-plate camera, two backs, and 12in. focus R.R. lens; also 8in. focus euryscope.—B. J. Grover, 38, Woodberry Down, N.

Quarter-plate Dollond's Simplex hand or stand folding pocket camera, first-class workmanship, R.R. lens, Thornton-Pickard shutter, three best double backs, finders, and case, cost £5 12s. 6d., scarcely used, will take £3 10s.—H., 21, Avenue Villas, Child's Hill, London, N.W.

Sundries.—Twelve quarter negative boxes each holding 90, lot 15s.; singly, 1s. 6d.—Bloomfield, 61, Manor Street, Braintree.

The AMATEUR PHOTOGRAPHER and the "Photographic News," 100. Offers?—Frederick Sharpe, Oakham.

20ft. oxygen cylinder, pressure gauge, and Beard's regulator, 20ft. hydrogen cylinder, all in perfect condition, been very little used. What offers?—Johnston, Sydenham House, Grey Flatt, Carlisle.

Tricycle, Singer's Traveller, any doorway, good as new, £6 10s., or exchange for cushion safety.—E. Norden, 52, Jerningham Road, New Cross.

AMATEUR PHOTOGRAPHER vols. 10 to 16, "Photographic Reporter" Nos. 14 to 35, "Photo. Quarterly" Nos. 3 to 12, and fifteen standard books on photography. Cash offers wanted.—Chas. H. Medlock, 120, West End Land, West Hampstead.

Cabinet burnisher and lamp, new condition, studio camera stand, portable, good condition, 25s.—Waters, 16, Gainsboro' Road, Bow.

"A satisfactory guide."—*Amateur Photography.* Dibdin's "Automatic Exposure Table," 1s.; case 3d. —Grange Road, Sutton, Surrey.

WANTED.

Cameras, etc.—Wanted, quarter special Instantograph, body only, or complete.—Glover, Percy Villa, Warwick.

Wanted, Lancaster's Instantograph camera, also hand-camera; state lowest price.—E. Jackson, 71, Oxford Street, Manchester.

Dark Slides, etc.—Double backs to fit Lancaster's Merveilleux stereo camera, 6¾ by 3¼.—Stereo, 3, Walpole Street, Wolverhampton.

Wanted, cheap half-plate dark slide for Lancaster's Merveilleux.—167, Cleethorpe Road, Grimsby.

Lantern Slides. — Wanted, slides illustrating voyage around the world (*via* Suez); approval; deposit.—Purdie, Bill Quay, Newcastle-on-Tyne.

Lenses, etc.—Wanted, half W.A. lens by a reputed maker (cash).—White, Adelaide, Blackpool.

Wanted, Optimus 7 by 5 wide-angle symmetrical lens. State price to E., 18, Rodney Street, Liverpool.

Sets.—Wanted, quarter-plate Meritoire set; approval.—Doggrell, Park Road, Belle Vue, Southampton.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Cameras and Sets.—Camera, 10 by 8 finest mahogany, double extension, leather bellows, wide-angle movement, rising and falling front, fine rapid rectilinear lens, Waterhouse stops, two double slides, clips, and catches, and sliding two-fold stand as new, £8 15s; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; whole plate camera, as new, by Laverne, rising, falling, and cross, reversing wide-angle movement, best double extension, leather bellows, rapid rectilinear lens, Waterhouse stops, three double slides, and folding stand, warranted, £8 7s. 6d.; half-plate camera, by Houghton, Holborn, grand lot, double extension, rising and falling front, swing and reversing back, three double slides, grand rapid rectilinear lens, iris stops, works *f*/8, and three-fold stand, set as new, £6 10s.; Rapidograph half-plate camera, by Perken, Son, and Rayment, double extension, leather bellows, reversing and swing, three double slides, fine rapid rectilinear "Leviathan" lens, iris stops, grand definition, three-fold stand and case, £6 17s. 6d.; half-plate Underwood's Instanto camera, leather bellows, square wide-angle movement, rising, falling, and cross fronts, double dark slide, quarter carrier, rapid rectilinear lens, Waterhouse stops, and folding stand, £3 17s. 6d.; half-plate "Duke" camera, double extension leather bellows, rising, falling, and panel front, back and front extension, two double slides, metal division, rapid rectilinear, Waterhouse stops, and folding stand, as new, £6 5s.; quarter-plate extending camera, bellows body, rising and falling front by Morley, Islington, good landscape and portrait lens, double dark slide, and folding stand, 22s. 6d.; quarter-plate Optimus camera, square body, back extension, three double dark slides, fitted good rapid rectilinear, and folding stand, as new, 40s. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Tench No. 7 landscape, covers 12 by 10, rotating stops, grand definition, as new, 70s., cost £3 10s.; Dallmeyer No. 3 10 by 8 rectilinear landscape, Waterhouse stops, finest condition, £4 17s. 6d.; whole-plate rapid rectilinear by Parker, Waterhouse stops, movable hood, 42s.; Optimus 9 by 7, portable symmetrical, rotating stops, *f*/11, as new, £2 17s. 6d.; whole-plate wide-angle rectilinear, by Laverne, fine definition, rotating stops, as new, 30s.; 7 by 5 Optimus landscape lens, rotating stops, finest condition, 27s. 6d.; 5 by 4 Dallmeyer wide-angle landscape (1 A patent), rotating stops, grand definition, 50s.; 7 by 5 "Black Band" lens by London Stereoscopic Co., Waterhouse stops, covers well, finest order, 45s.; Ross's No. 4 portable symmetrical, 6 in. focus, rotating stops, as new, 63s.; Crouch wide-angle rectilinear, 6 in. focus, rotating stops, as new, 42s.; Ross 5 by 4 Universal symmetrical, iris stops, movable hood, works *f*/5·6, as new, £5 5s.; Laverne 5 by 4 wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B), Waterhouse stops, rack focussing, condition as new, £3 17s. 6d., cost £6 5s. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

Bargains in Hand Cameras.—Beck's quarter-plate hand camera, Beck's autograph lens, iris stops, Newman's time and instantaneous shutter, six double dark slides, adjustable focus, covered leather, finest condition, take £6 15s., cost £12 12s.; Fallowfield's Facile hand camera, fitted R.R. lens, time and instantaneous shutter, carries 12 ¼-plates, condition as new, £3 17s. 6d.; Swinden and Earp hand-camera, fitted Laverne rapid rectilinear lens, Waterhouse stops, Kershaw shutter, adjustable focus, carries 20 ¼-plates, £5; Laverne's hand-camera, covered morocco, good lens, iris stops, time and instantaneous shutter, two finders, carries twelve quarter-plates, 60s.; No. 1 Kodak, R.R. lens, shutter, etc., carries 100 films, in leather case, 37s. 6d., cost £5 5s.; Radial hand-camera, by Marion, fitted "Soho" lens, carries twelve quarter-plates, shutter, two finders, focusser, etc., in leather case. £5 17s. 6d.; Optimus detective camera, carries twelve quarter-plates, brass bound, fitted Wray's 5 by 4 R.R. lens, Thornton-Pickard shutter, two finders, level, etc., as new, £5 7s. 6d.; Adams' Ideal hand-camera, all latest improvements, grand condition, fitted R.R. lens, time and instantaneous shutter, two finders, carries 12 quarter-plates, covered morocco, £5 12s. 6d. lowest; Houghton's Automatic hand-camera guaranteed as new, rapid rectilinear, rotating stops, Thornton-Pickard shutter, carries twelve quarter-plates, fine camera, £4 10s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Magic Lanterns and Slides. — Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

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No. 443. Vol XVII.] FRIDAY, MARCH 31, 1893. [Price Twopence.

OUR ◆ VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

Our Views.—The *Art Journal* on Photography—The Study of Monochrome Reproductions—The Faversham Institute Exhibition—The Croydon Exhibition—The Camera Club Conference—Women Experts in Photography—Making a Lens—The Cost of a Lens—A Blunder—Easter Holidays—The Position of the Diaphragm—National Eisteddfod of Wales—Affiliated Societies and Exhibition Rules—A Rumour—A Free Offer—The Crystal Palace Exhibition—The *Spy* and Photographers.

Leader.—Orthochromatic Photography.

Letters.—The Choice of a Hand-Camera (Vigilantia)—Edinburgh Slum Life (Baird)—The Study of Animals by Photographers (Animalculæ)—An Appeal (Sutton)—An Explanation Wanted (Cook)—Instantaneous Shutters (C. P.)—The Pentane Light (Dibdin)—National Photographic Exhibition (Wollaston).

Legal Note.—Rouch *v.* Newman and Adams.

Reviews.—Elementary Photography (Hodges)—Die Photokeramik (Husnik)—Photographische Optik (Miethe)—Taylor, Taylor, and Hobson's Lens Fittings—Mawson and Swan's Exposure Note Book.

Our Lantern Screen.—Biunials (Noakes)—Lantern Slides by Camera Reduction (Beach)—Practical Remarks on Lantern-Slide Making—Hints on the Manipulation of the Optical Lantern (Horton).

Apparatus.—The Optimus Level—Perfect Sensitised Paper.

Articles.—Photographic Procedure (Wall)—On Some Chemicals used in Photography (Brumwell)—Club Types (By the Man about Town).

Society Meetings.—Accrington—Aston—Birmingham—City and Guilds Institute—Fairfield—Fillebrook—Gosport—Glasgow—Hackney—Liverpool A. P. A.—Liverpool Camera—Leeds Y.M.C.A.—Llandudno—Nottingham—N. Stafford—N. London Putney—Richmond—Sydenham—S. London—Stockton—Tooting—Wigan—Woolwich.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Competition, No. 47. Hand-Camera Work.—Latest day, April 13th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. Two slides to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and slides reproduced and criticised in the Amateur Photographer Supplement, April 28th, 1893.)

The April number of the *Art Journal* contains a fair and impartial article, entitled "The Artist as Photographer," by Thomas Runciman, which contains so many passages of interest that we should like to print the whole *in extenso,* but must content ourselves with a few extracts. The first, that is keen and caustic in its quiet satire, is the following:—

> "Great are the claims put forth. While many people were hesitating to admit the serious character of impressionism in painting, a paper was boldly read at the Adelphi, not long ago, proclaiming and defending the existence of a School of Impressionism in photography. A good deal of dust has been kicked up first and last on this topic: Argument not much."

Surely, too, we have one (?) living example which proves the truth of the remark that "it would seem as if the spirit of religious heat had now possession of the field of Taste, and opponents make up for their unwillingness to predict hot punishment hereafter by giving each other 'pepper' here."

Mr. Runciman asks, "What is Fine Art? Definitions are notoriously leaky, but a fairly trustworthy one is that which says, "Fine art is the work of the head, the heart, and the hand." He then advances the well-worn argument of the professional who poses and lights and exposes, whilst the plate is developed by one assistant, retouched by another, printed by another, etc. The conclusion arrived at is:—

> "Clearly, if our definition of art is anything like final, the photographer is not necessarily a *fine* artist, though it cannot be denied he uses skill, and practises a craft. Perhaps his claims are fully met if we admit that, though not necessarily in the full sense an artist, yet he must be highly artistic if he can turn out an agreeable and vigorous picture, whether by his own or the manual dexterity of others who are under his direction."

One statement we do not agree with, and that is—"Somehow any attempt to make a human being look under the influence of sentiment in a photograph results in imbecility." Surely some of our foremost workers in genre and figure study have produced works which disprove this. Self-consciousness, which is blamed for this, is surely a want of power on the part of the sitters, not on the part of photography and the producer, or the would-be picture-maker.

We dare not extract any more of the cream of this paper, but we strongly advise our readers to obtain a copy of the paper and read it for themselves, and to those hard-working honorary secretaries of societies who may be hard driven for a subject, this paper will form a good draw for one evening, and the frontispiece, a magnificent photo-aqua tint by Boussod-Valadon of a portion of Herbert Schmalz's well-known picture "The Return from Calvary," will form an ornament to the walls of any club-room. Messrs. Virtue and Co., of 26, Ivy Lane, Paternoster Row, are the publishers, and the price is 1s. 6d.

THE final paragraph of this paper must form our concluding extract; it is at least encouraging and hopeful, and an answer to the recently promulgated statement that photography is not art, but a means of decoration:

> "On the whole, photography has a good future before it. The old-fashioned ineptitudes that die so hard are here really, surely, if slowly, dying. Art in photography is not played out, but only beginning to assert itself. If the public do their part the interesting character of such work must become more and more apparent and widespread."

If photographers, both amateur and professional, would study such magazines as the *Art Journal* and others which are illustrated by reproductions in monochrome of the works of leading artists, both living and dead, we are certain that there would be less of the topographical and mediocre in their work than at present. The old cry of less plate spoiling and more attempts at picture-making has a vast amount to recommend it as a watchword for photographers.

◆

FROM picture-making to exhibitions is but a step, and many work solely for this idea. Yet again more obtrusive than ever is the cry for no classes and no medals. The Faversham Institute Photographic Society have determined to abolish the system of competitive awards and loan exhibits, and to limit the exhibition which is to be held on 25th and 26th of April to specimens of members' work irrespective of class.

We have received a letter from an anonymous correspondent, which says "that at an exhibition lately held in the south-west of England thirty-seven awards were given amongst thirty-eight competitors, and this in the face of the cry against too many medals." This does not concern us much, people know their own business best — a remark which equally applies to the Croydon Camera Club, who intend to give, so our correspondent says, a prize to every competitor. But perhaps somebody has made a mistake.

◆

As previously announced, the Camera Club Conference will be held in the Theatre of the Society of Arts, John Street, Adelphi, on April 12 and 13; the following is the programme:—

Wednesday, April 12th.—To be opened by the President, at 3 p.m. Papers to be read from 3 p.m. to 6 p.m., in the theatre:—3 p.m. opening by the President; Mr. Wm. Taylor, "The Establishing of Standards;" about 3 45 p.m., Mr. T. R. Dallmeyer, "Lens Systems;" about 4.45 p.m., Mr. Chapman Jones, "On Certainty in Photography;" about 5.30 p.m., Mr. Leon Vidal, "On the influence of Photography upon vision and upon works of art both in respect of form and colour"; 7.30 p.m., annual Club dinner for members and friends.

Thursday, April 13th, 3 p m.—Renewal of Conference in the Theatre, Society of Arts. Papers to be read from 3 p.m to 6 p.m.:—3 p.m., Professor E Mach, "Scientific Applications of Photography;" about 3.30 p.m., Mr. A. W. Clayden, M.A., "The Organisation of Meteorological Photography;" about 4 p.m., Mr. Hume Nesbit, "Relations of Art and Photography;" about 4.45 p.m., Mr. Rowland Briant, "Astigmatism and Pictorial Effect in Photography;" about 5.30 p.m., Dr. J. M. Eder; "On the determination of focal points in the use of photogrammetric apparatus;" Renewal of Conference at 8 p.m.: 8 p.m., Mr. H. Van der Weyde, "The Pictorial Modi-fication of Photographic Perspective" (illustrations by the Photo Corrector, the working of which will be demonstrated); 8.45 p.m., Captain W. de W. Abney, C.B., R.E., F.R.S, "On the Speed of Plates, and other Matters;" 9.15 p.m., Mr. H. M. Elder, M.A., "Some Notes on the Effect of Light on Plates."

Friday, April 14th, 8 p.m. — Exhibition of lantern slides in the theatre. Special tickets for this exhibition.

The annual exhibition of photographs by members will be on view at the Club, Charing Cross Road, after Conference week. Admission, on Tuesdays only from ten to twelve and two to four, by tickets from members of the Club. The exhibition will continue for about six weeks.

All photographers are invited, and as the papers and proceedings of the Camera Club are now printed for private circulation only, we presume that few except those who attend will be able to get any benefit from the Conference, as no journal will be able to print the papers.

MR. CLARENCE B. MOORE contributes a capital article to the March number of the *Cosmopolitan*, on "Women Experts in Photography," illustrated by process blocks from the work of Mrs. Bartlett, the Misses Clarkson, Johnston, Slade, Farnworth, and Needles, and Mrs. Wright. Miss Weed Barnes, who is so well known in England, is not represented. It would be interesting to pit the ladies of England against their sisters in America. It would at least produce a good show.

◆

IN Dr. Miethe's book on photographic optics, which we review elsewhere, there is an instructive and interesting table of the time involved in constructing a lens. The details are:—

Cutting four discs from the raw material ..	8	hours.
Roughing and coarse grinding for every surface, according to the hardness of the glass and depth of the curves, approximately twenty minutes	2¾	,,
Fine grinding, for every surface approximately three-quarters of an hour	6	,,
Polishing, for each surface approximately two hours	16	,,
Centering, setting and blacking, etc. ..	8	,,
Total	40¾	hours.

◆

WHEN we consider that this does not include the preparation of the tools, the cementing of the glass to the same, etc., one ought not to wonder that first-class lenses are expensive, for, as Dr. Miethe justly points out, although many lenses are ground by machinery, and much of the work is aided by machinery, yet there remains a great deal that only the master hand of the optician can do.

◆

SOMEBODY blundered, surely. A well-known amateur, so the story goes, recently put up for election at a well-known club, but was requested to withdraw his name, apparently for no reason except that he wasn't wanted. Now he receives a circular inviting him to contribute to a fund to present two of the prominent members of the club with a testimonial. It was bad enough to be refused admittance; to be asked to contribute to a testimonial was adding "insult to injury."

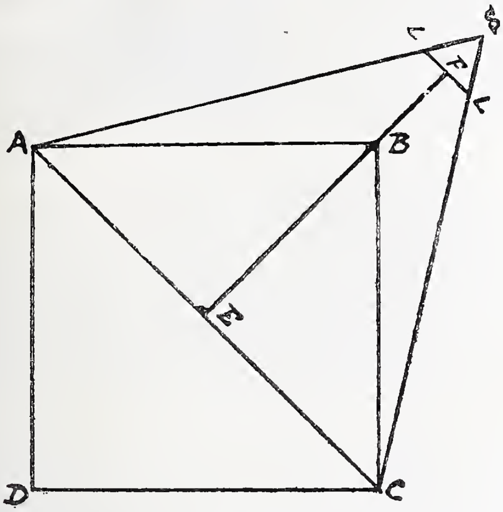
◆

EASTERTIDE being nigh at hand club excursions innumerable are on the *tapis*, the unattached amateur also having made his final arrangements for a view-hunting tour. At the various seaside resorts we shall meet the usual individual with a hand-camera, prowling about seeking whom he may take a sly shot at. Loving young couples mooning on the pier and elsewhere should be on the alert, for they know not the hour nor the minute when one of these cruel, heartless wretches may creep up behind them like an Indian on the war-path and wait for an opportunity of getting a picture illustrating "Affection" or "Love," which, when reproduced on a lantern-slide and thrown on the screen at some future meeting, will provoke roars of laughter from an unsympathetic audience.

◆

ACCORDING to our contemporary, *Iron*, a certain Dr. Piassetzky has intimated to the Société de Géographie de Paris his intention to present them with a photograph of the Transcaspian Railway, 130 metres long. As this is about 430 English feet, the remark that "it is expected to arouse great interest in Paris—that is to say, as soon as the geographers have found a building in the French metropolis large enough to accommodate the monster picture"—is not uncalled for. Our American cousins are proverbial for big things—can they beat this!

A question often asked is—What is the proper position for the diaphragm for single lenses? — the usual reply being from one-fifth to one-seventh of the focal length. In a recent number of the *Photographic Times* the editor gives the following answer:—Draw a square A B C D, each side of which shall be equal to the focal length of the lens, draw a diagonal A C, bisect this, and from E let fall a perpendicular E F, equal to the focal length, which shall cut one of the corners B. At right angles draw L L equal to the diameter of the lens, then from the two ends of the diagonal draw the lines A L, C L, and produce them till they cut one another at S, which is the correct position for the diaphragm.



◆

The National Eisteddfod of Wales, which is held annually, and this year in August, offers the following prizes for photographs:—

Set of not less than six nor more than twelve photographs, illustrating the coal industry from the cutting to the shipment. Prize £5.

Set of not less than six photographs, illustrating the industries of Wales. Prize £5.

Set of six instantaneous photographs of a football match, illustrating various phases of the game. Prize £2.

Landscape photograph. Prize £1.

Architectural photograph. Prize £1.

The adjudicators are Messrs. T. Forrest, B. Thomas, and Lawrence, and photographs are to be sent to the General Secretary, National Eisteddfod of Wales, Pontypridd.

◆

We are glad to see that the delegates of the affiliated societies of the P.S.G.B., which now number forty-seven, propose to consider the question of exhibition rules. This is not the rose, but at least the scent of the same. Would not this consideration have come better from the parent society itself?

◆

On dit that we are to be treated presently to something startling in connection with a certain official or governmental department, which attempts to raise the standard of photography and photographers.

◆

We have had a large number of odd numbers of the Amateur Photographer and *Photographic Quarterly* placed at our disposal, and shall be glad to hear from the secretaries of societies who may desire to complete sets. A stamp or post-card must be sent for reply, and carriage on the books must be paid by the societies.

◆

With regard to the Crystal Palace Exhibition, it is rumoured that one society has decided to exhibit but not to *compete!* This is rather a significant fact. The committee of this society must be either a very generous body of men, who have adopted this course in order to give the other societies a chance, or they must have come to the conclusion that their society would not by any means be in the running.

◆

A little time back a Manchester weekly paper called *The Spy* published certain damaging statements against a professional photographer, and literally hounded him out of the country. But in December last an attack was made on a Bolton photographer, the foundation for which seems to have been but of the most meagre description. We regret to hear, however, that this has practically ruined the poor man, and he is not in a position to take legal action. Surely the N.A.P.P., or the National Association of Professional Photographers, should step forward and give the lie to the implication of *The Spy* that all photographers are immoral, and at the same time teach it that even this poor unfortunate is not to be ruined for nothing.

ORTHOCHROMATIC PHOTOGRAPHY.

In our previous articles entitled "Notes on Colour," we have considered the effect of light as a visual agent, that is, its effect upon the eye; we now must consider the result of its action upon certain metallic salts and compounds. It is well known that the effect of light may result in a physical and not a chemical action, but in photography we have to consider the latter only, and we shall therefore confine our attention at present to the consideration of the photo-chemical action of light upon the salts of silver, because it is by this action, originated by light and completed by the action of a certain solution, termed a developer, that we obtain those results we desire.

When examining a beam of sunlight by the aid of a spectroscope, we found various coloured lights arranged in a certain order, beginning with light waves of slow or long periods and passing on to short or quick. We also noted that part of this spectrum, or one set of wave lengths, appeared of intense and vivid luminosity; this portion is situated in the yellow. And we also noted that the existence of the invisible red rays could be proved by the deflection in the needle of a galvanometer connected with a delicate thermopile, and that the existence of a point of maximum heat could be proved; so, also, it has been customary to speak of a certain portion of the rays of light as being the chemically active rays. We have thus the chemical, visual, and calorific rays.

Subsequent considerations will show us that this limitation of the chemically active rays to one particular portion of the spectrum is a great deal too arbitrary, and that the whole range of the spectrum, from the ultra violet to the infra red, is capable of setting up photo-chemical action on some silver salts and compounds under certain conditions. It is better for our purpose to divide the spectrum into the more refrangible rays and the less refrangible rays, the former including the ultra violet, the violet and blue, and the latter the green, the yellow, the orange, the red, and infra red rays; at the same time distinguishing any particular part of the spectrum by the Fraunhofer line.

The photo-chemical action of light on a silver compound was known to the old alchemists, they recognising the property which Horn silver or Luna cornua possessed of blackening in light. The first idea of the different action of different coloured light is to be found, we believe, in a treatise by a French academician, Duhamel du Monceau, "Quelques expériences sur la liqueur colerante que fournit le Pourpre, espèce de coquille qu'on trouve abondamment sur les cotes de Provence," in the "Histoire de l'Academie Royale des Sciences," Paris, 1736, p. 49, where the writer says that to his astonishment he noticed that the reddening of the juice of the shellfish took place more quickly and intensely under tolerably opaque blue paper than under more transparent yellow or red paper. Scheele was the first, however, to examine in 1777 the action of the solar spectrum on chloride of silver, and stated that the violet part blackened chloride of silver far more than the other rays. Senebier in 1782 published the results of his experiments on the action of sunlight on different matter, and gave the following table of the time in which chloride of silver was coloured by the different parts of the spectrum :—

Violet light	in 15 seconds
Purple "	" 25 "
Blue "	" 29 "
Green "	" 37 "
Yellow "	" 5½ minutes
Orange "	" 12 "
Red "	" 20 "

Senebier also stated that the three last-named colours never produced such an intense blackening as the others, and also noted that the purple chloride of silver became blue under the blue rays and brighter as it reached the less refrangible rays, yellow, orange, and red, and, as Eder justly remarks, may be considered as the forerunner of Seebeck in the discovery of the reproduction of the colours of the solar spectrum.

In the Journal of the Franklin Institute for 1837 Draper describes a trough, with plate-glass sides, filled with different coloured fluids, and notes the effect of light, after passing through it on sensitive paper prepared with chloride or bromide of silver. He also mentions the image of the solar spectrum passing through the trough when filled with chromate of potash and ammonio-sulphate of copper.

Probably there cannot be found any distinct mention of the want of actinic power of the less refrangible rays, although such would be generally recognised and acknowledged from the fact that yellow or orange glass was used for the illumination of the dark-room for working collodion plates. Sir (then Mr.) William Crookes in 1858 contributed as editor an article to the *Photographic News*, October 15th, "On Copying Paintings by means of Photography," in which, after summarising the untruthful effect of photographing blue and yellow, he suggests the use of bromide of silver instead of the iodide, and the placing of a cell filled with solution of sulphate of quinine in front of the lens so as to absorb the violet and ultra-violet rays, which, though nearly invisible to the human eye, are so powerful in action upon the sensitive salt of silver; he also suggests the use of a piece of a yellow glass as a screen for the same purpose, but this we shall refer to later on.

Letters to the Editor.

THE CHOICE OF A HAND-CAMERA.

Sir,—I have read with interest G. C.'s article on "Choice of a Hand-Camera," and while agreeing with some of his views, I think others are very questionable. With 1, 2, 3, and 7 I fully agree—with 7 most emphatically! As regards No. 4, Universal cameras seem to me, as a rule, to be fairly simple, judging from the Bruno, Aptus, or such like, and are hardly to be avoided, as G. C. advises, especially when such a worker as Paul Lange so strongly advises this style. Then, as regards condition 5, G. C. uses that unfortunate expression "fixed-focus lens," while what he means is no doubt a camera without provision for focussing; and while I agree with G. C. in advising a camera that has adjustable focus, still several without this can be had with lenses of 5½ in. focal length, so that a short-focus lens is not a necessity in a camera without provision for focussing. And to show that a lens need not be short focus to be worked at fixed focus, I may say I have successfully, for marine snapshots on a half-plate camera, used a 9 in. focus lens, fixing the camera at the mean focus point found by the well-known rule. Then as regards condition 6, if a hand-camera is to be used for snap-shot work only, many good pictures would be lost that could be got if it could be used on a tripod, and a time exposure given with small stops, and after focussing. It is quite true it might be better to use a stand camera in such cases, but one is not inclined to carry both hand and stand camera on, say, a walking trip, and if a camera can be used for both without spoiling its suitability for its *main* use—snap-shot work—then I say it is better to have such, rather than one suitable for the one class of work only. In No. 8, G. C. is wrong, both as to size and price being necessarily doubled with a twin-lens camera. In No. 9, seeing I advise a camera of more or less universal use, I also think G. C. is wrong.

I do not write this in any spirit of carping criticism, but merely because I gave a lot of attention to this subject lately, and I am sure your readers will be the better of hearing two sides of the question, and perhaps some of our crack hand-camerists may also give their views, which cannot fail to be useful to novices.—I am, etc., Vigilantia.

* * * *

EDINBURGH SLUM LIFE.

Sir,—Under heading of "Societies' Meetings," allow me to point out an error which might mislead some.

"Edinburgh Slum Life" was a lecture delivered quite independently of the society, its objects being to interest the Edinburgh public in its poor, not as a photographic or lantern evening.

Mr. Fairbairn is interested in improving the condition of the poor, and with him I arranged to photograph, by the aid of my Todd-Forret flash-lamp, many very humble dwellings that with daylight it was impossible to do.—Yours respectfully, A. H. Baird.

* * * *

THE STUDY OF ANIMALS BY PHOTOGRAPHERS.

Sir,—I was greatly interested in reading the article in your issue of 24th inst., by "Tommy Atkins," on the above subject, but was at a little loss to gather from it what his exact idea of an animal study was, but should my idea and his coincide, then, although an amateur of only one season's experience, I can, without hesitation, say with him that I do not know of any more interesting study than animal study.

I have often wondered myself why amateurs do not devote themselves more to this branch of photography, but suppose it is because such studies are more rarely come across in their rambles than ordinary landscapes, etc., and that when they are, it is as a rule a somewhat difficult matter to rig up your camera, should it be a tripod, sufficiently near without disturbing the animals.

Now my idea of an animal study is not merely the portrait, as one may say, of a horse, dog, etc., but a landscape or portion of a landscape in which the animals play an important part and, indeed, practically make the picture.

To explain this more fully I am pleased to be able to send you a small specimen of my own, a sheep study, which I consider, under the circumstances, I was rather fortunate in securing last summer during a short stay in Somersetshire.

This was the only picture of its kind that I remember seeing that I thought was worth exposing a plate for during my fortnight's stay, and it may interest readers to know that it was taken with a quarter-plate tripod camera, which was placed within two or three yards of the nearest sheep, and the whole performance of focussing and exposing gone through without disturbing them; no shutter was used, as I did not possess one, but an exposure of one and a half to two seconds was given with *f*/32, sun shining.

Finding an enlargement of this picture has attracted rather more attention amongst friends than I expected, I have determined to devote myself more to such studies this season, and perhaps, Mr. Editor, try to obtain one of your medals later on.

Thanks to "Tommy Atkins" again, I have been enabled to decide which shutter I should furnish myself with, more especially for this kind of work; for some time I had been undecided in my own mind about this, but shall have no hesitation now in purchasing the Thornton-Pickard, and hope, with its help, to turn out some pictures worthy the name.—Yours, etc., Animalculæ.

[The print sent is what we should call a very good animal study, and such as this would be of value to artists of the brush for painting from.—Editor.]

* * * *

AN APPEAL.

Sir,—I shall be very grateful to any of your readers who can lend me lantern slides of Bettws-y-coed and its immediate neighbourhood. I wish on 6th April to give a lantern show to a lot of poor working men living in a Liverpool slum parish, who purpose spending Whit Monday in that pretty little village, and would like to give them an idea of the scenery, etc.

I will gladly pay carriage and return promptly. I need hardly say that any brother amateur having prints no longer "cherished and loved" will find very grateful recipients in many of our cottage homes (if mounted, so much the better).—Yours, etc.,

27, Seldon Street, Kensington, E., Liverpool. W. T. Sutton.

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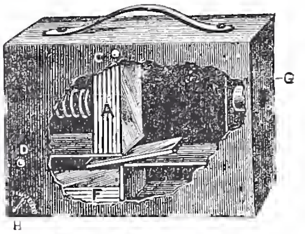

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AN EXPLANATION WANTED.

Sir,—Referring to the letter of W. T. G., headed "An Explanation Wanted," the writer of that letter must not think he has made a discovery or he will be disappointed, as I was some time ago, to find that there is nothing new in this increase of density upon drying a negative by heat. If he had gone still farther and applied greater heat to his negative he would have found that it caused the gelatine to swell and the image to be brought into relief. By this means a considerable increase of density is obtained, and an otherwise rather thin or flat negative is thereby greatly improved, as can easily be proved by giving two plates exactly the same exposure and development, and drying one naturally and applying sufficient heat to the other to cause the gelatine to swell, and then comparing prints from the two negatives. The improvement in the print from the heat-dried plate is, in my opinion, more marked than would be obtained by a corresponding increase of density by the ordinary process of intensification. This swelling of the gelatine, however, seems to cause a loss of the fine detail in the shadows.

This expansion of the gelatine is, I believe, the basis of Sutton's process, by which a negative in relief is obtained by drying by heat and an electrotype taken direct from the negative.

W. T. G. will find his experience of previously dried plates reversed, if the amount of heat necessary to cause the swelling is applied, as I have found that plates, after being dried, then soaked in water and subsequently dried by heat, contained a plentiful crop of pinholes, as also was the result of intensifying, in the usual way, heat-dried plates.

Of course, all the water must be removed from the surface of the plate before heat is applied, or uneven density would result, and if the heat applied is too great, even to a slight extent, the gelatine will melt, and the negative be spoilt.—Yours truly,

A. W. Cook.

* * * *

INSTANTANEOUS SHUTTERS.

Sir,—In answer to "One Who Doesn't Know," the shutters used were the old form of Newman's patent (*i.e.*, the one with the round top), the other one was constructed on the same principle as all blind shutters, it was made in France. The cameras were held both at the same level. What some of your readers did not seem to understand was that although the rubber balls were pressed as soon as possible after the dog had taken his leap, the exposures were only made when the dog was already on the other side of the stick.

What I regret is that I have thrown away the plates this summer, as they were not good enough to yield good prints. I then had no idea of writing to the Amateur Photographer until lately a friend of mine experienced in photography told me that it was a very curious fact, which I ought to report to your paper. He tried to make it out this way, that the roller blind shutter would have to travel the whole length of the plate, 4¾ in., whilst Newman's would only have to travel 1 in.; consequently, the former would have to travel four and three-quarter times quicker than the latter, in order that the exposure should be equal. One of your readers says in the Amateur Photographer of three weeks ago, that he obtained the same result as I. Would he not be kind enough to send to you his two negatives? I am sure it would interest a good many of your readers.

I remain, Sir, one very thankful to you for your advice, which appeared in the Amateur Photographer.—I am, etc., C. P.

[We think our correspondent loses sight of the fact that in estimating the necessary speed of a blind working in front of a plate, it is necessary to regard only the actual points at which the image is formed, and that whilst these may be exposed 1-80th or 1-1000th of a sec., the whole plate may be exposed a considerably longer period.—Ed.]

* * * *

THE PENTANE LIGHT.

Sir,—In your issue of the 24th inst. you observe with reference to the Pentane Argand Standard of Light, "We have received information from a large plate manufacturer that he has tried the pentane lamp, and found that the light is, so far as he could see, no improvement on the candle, or but little as regards constancy."

As this statement is in direct conflict with the results of a very large number of tests made by some of the most experienced and competent photometrists of the day, I have to ask you, as a matter of pure justice and in the interests of truth, to give your authority for the observation, and also the exact detailed experimental results, both photometric and photographic, arrived at by him.

I have again and again shown that the pentane argand is a standard which is reliable under the most varied conditions, so that when these conditions are kept constant in a state midway between the allowable extremes, the light must be absolutely uniform. The extremes I refer to are as follows, viz: A variation in temperature of the atmosphere of over 40 deg. F., a difference of 2½ in. in the actual height of the flame, an extreme variation of 2 in. in the depth of pentane in the carburetter, *i.e.*, whether it is nearly full or nearly empty; and lastly, constant results, whether coal-gas or atmospheric air is used.

I have no doubt but that many of your readers will feel rather uncomfortable at being asked to accept such a statement as the above. If they will have a little patience, however, and you will give me the opportunity, I shall be pleased to give them a full detailed statement of the ten-candle pentane argand standard, and of the manner in which it is used. The latter is simplicity itself, however, and involves nothing more than supplying the container with liquid pentane (specially prepared petroleum spirit), turning on the air or gas supply, and lighting the burner. No meter, governor, clock, balance, thermometer, or barometer to read. Merely give the burner ten minutes to get hot, as with all argand burners, and proceed with the test.

The objection that as the pentane argand is now arranged it gives a yellow light is, of course, a substantial one, but the colour is identical in character with that yielded by an ordinary argand burner consuming coal-gas. If it is required for photographic purposes, I should use it in precisely the same manner, but substitute ether for pentane, when a remarkably pure white light is given, but having only one-half the intensity, *i.e.*, five candles instead of ten candles.

I may mention that I have no patent rights in the matter, but that the standard is really the outcome of work carried on in my official capacity as Chemist and Superintending Gas Examiner to the late Metropolitan Board of Works and the present London County Council.—I am, etc., J. W. Dibdin.

* * *

NATIONAL PHOTOGRAPHIC EXHIBITION.

Sir,—Owing to the Easter holidays intervening, it has been decided to extend the time for receiving entry forms to Wednesday, April 5th, and it is hoped that exhibits may be delivered not later than the same day.—Yours, etc.,

S. G. Buchanan Wollaston.

◆

ROUCH *v.* NEWMAN AND ADAMS.

This was an action tried on March 20th before Mr. Justice Wright sitting as a Judge of the Chancery division of the High Court of Justice.

The plaintiff, who is the proprietor of the Eureka hand-camera, carries on business in the Strand.

The defendant Newman is a scientific instrument maker of 71, Farringdon Road, and the defendant Adams is a manufacturer and vendor of photographic cameras and materials of 81, Aldersgate Street and 26, Charing Cross Road.

The counsel for the plaintiff were Mr. Bousfield, Q.C. and Mr. Baines (instructed by Mr. Dalzell). The counsel for the defendants were Mr. G. Farwell, Q.C., and Mr. C. E. E. Jenkins (instructed by Messrs. Godfrey and Webb).

This action arose out of another action brought in 1890 by Newman and Adams against Rouch, in which they claim to restrain Mr. Rouch from infringing their patent of June, 1886, for "Improvements in changing boxes for photographic cameras."

Mr. Rouch had taken out two patents in 1887 and 1888 for similar objects, but his patents had been anticipated by the patent of 1886. The result of that action was that Mr. Rouch agreed to pay a portion of the costs of Messrs. Newman and Adams, and to accept a license from them for the Eureka camera, and to pay them a royalty upon every camera and changing back made by them. Messrs. Newman and Adams, on their part, agreed that they "would not make or sell, or permit to be made or sold, any camera or changing backs of the same pattern and appearance" as the "Eureka" camera and changing back, and it was also provided that "neither the grantors nor the grantee should make or sell, or cause to be made or sold cameras or changing backs of the same pattern, or in imitation of those made and sold by the other or others of them."

This license was granted on April 23rd, 1891, in pursuance of an agreement dated March 12th, 1891. On March 31st, 1891, in pursuance of negotiations which had been extending over some months, Messrs. Newman and Adams granted to Messrs. Talbot and Eamer, of Blackburn, a license to use their patent in the Talmer camera. Mr. Rouch continued to pay his royalties down to September, 1892. In the month of October, 1892, Mr. Rouch commenced an action against Messrs Newman and Adams claiming an injunction to restrain them from making or selling, or permitting to be made or sold any photographic cameras or changing backs of the same pattern and appearance as the Eureka, and for damages, and he complained of the Talmer camera which was being made under the license of the defendants, and of the Adams camera which was being made by the defendant Mr. Adams, and alleged that his sales of the Eureka had fallen off since these cameras had been in the market.

The plaintiff was called and gave formal evidence in support of his case, and was cross-examined as to what took place during the negotiations for the settlement of the action against him in 1890

No other witnesses were called at this stage on behalf of the plaintiff.

The defendant Adams was called by defendants' counsel, and stated that the plaintiff, at the time of the negotiations for the license, attached particular importance to the detachable changing back which he was then advertising in connection with the Eureka, that the Talmer camera was more than once discussed between them, and the advertisement of the Talmer appearing in the British Journal Almanack was referred to, and that witness agreed that he would not permit Messrs. Talbot and Eamer to sell the Talmer camera with a detachable changing back, and that the plaintiff expressed himself satisfied, and did not object to the Talmer being sold with a fixed changing back; and the license was accordingly granted to Messrs. Talbot and Eamer, his lordship having expressed his opinion that there was no question of validity of patents involved in the action, but that the simple question to be decided was whether the cameras complained of were of the same pattern and appearance as the Eureka.

Expert evidence was called on the part of the defendants to show that the Talmer was not the same in pattern and appearance as the Eureka. Evidence on this point was given by Mr. Adams, Mr. W. D. Welford, Mr. Guardia, and Mr. Alexander Mackie. Nothing was said about the Adams' camera, as the plaintiff practically abandoned his case so far as that was concerned.

After the evidence for the defendants was closed, Mr. Bousfield asked to be allowed to call evidence on the same point, and being permitted to do so, he called Mr. J. Traill Taylor, who would not swear that the cameras were the same in pattern and appearance, and admitted that there were many points of difference, and that no person versed in photography would be likely to purchase one instrument in mistake for the other, but he said that cameras were bought by school boys when going for their holidays, who would be likely to buy the cheapest camera.

Counsel having addressed the Court, his lordship delivered the following

JUDGMENT.

Mr. Justice Wright: The real question here, I think, is whether the two cameras or the two changing backs are of the same pattern and appearance. There is another question as to whether the defendant has permitted the form of camera or of changing back to be sold, and what the effect is, but I will deal with the main question first. The first thing to be observed is that the words are, "Cameras or changing backs of the same pattern and appearance." It is not enough to constitute a breach of that agreement that they shall be of the same pattern, nor enough that they shall be of the same appearance, without being of the same pattern; they must be of the same pattern and appearance. On the other hand, Mr. Bousfield is clearly right in saying that he is entitled to succeed in substance, subject to any other objection, if either the camera or the changing back is of the same pattern and appearance—the two things. So far it is a question of fact for me. I think that neither the camera nor the changing back is, in the two specimens in question, of the same pattern and appearance. I have no doubt it is as to the persons who have been described as school boys—that is to say, as to persons unfamiliar with the matter altogether—they might think that cameras and changing backs, which are the most dissimilar to anybody who knows anything about it, were apparently identical It is so in every matter of industry, art, or science, persons wholly ignorant of anything connected with it will think that there is no difference, where anybody with a smattering of knowledge even will see the most vital distinctions. I do not think you can construe an agreement of this kind between business men as dealing with the similarity in that sense. You must assume that they were dealing with that kind of similarity which governs the commercial transaction in relation to the particular thing in regard to which these parties were contracting. It seems to me, I confess, having regard to the evidence given, that these two cameras, with their changing backs, differ in every important part except so far as the part must necessarily be similar in order that this question should arise at all. Of course, the parties were dealing *ex hypothesi* with cameras intended for the same purpose and changing backs intended for the same purpose, and, therefore, cameras and changing backs involving similarity to the same extent to which every two human beings are similar—presumably, each have two legs and two arms, and a head and some other organs; but it is absurd to say that two human beings are of similar pattern and appearance because of that similarity. The leg in each case, and the arm in each case, and the head in each case appear to me to be different as regards these cameras and changing backs.

Then further, I think, if it is a question not simply for me, but a question of skilled evidence as to what these ambiguous words mean—words which in that respect are subject to a latent ambiguity—then I come to the same conclusion The eminent witness, called in reply by Mr. Bousfield, Mr. Taylor, confined himself to the question of patterns. He did not deal at all with the question of being the same in pattern and appearance. He said the pattern was the same, and he did no at all go to the length of saying the pattern and appearance were the same, and the evidence of the other side is entirely contrary to that. Mr. Taylor himself said in cross-examination that he would not have been deceived, and that no one who knew the construction of a camera could be misled into mistaking the two. Then, as regards the question of fact, there is a contradiction of recollections between the two gentlemen, Mr. Rouch and Mr. Adams, and, going by the guide of probabilities, I accept Mr. Adams' recollection. Of course, Mr. Rouch has come here intending to tell the truth in every respect, but it is some time ago, and he is a little deaf, and the matter is a little difficult for the parties to recollect precisely. I accept Mr. Adams' recollection for this reason. You have the best confirmation of it you can have in the fact that immediately afterwards, before any question had arisen, before there was any reason to suppose a question could arise, Mr. Adams goes and acts upon the view which, according to his recollection, was the true view of the conversation. He says that they both understood that the Talmer camera was to be allowed to go on, but that in concession to Mr. Rouch's wishes it was not to be allowed to go on with the detachable changing back or changing box. Then you find that between the date of the draft agreement of the 12th March, and the perfected agreement of the 23rd April, Mr. Adams did grant a license to the owners of the Talmer camera authorising them to do what, according to Mr. Adams' recollection, it had been agreed that they should be allowed to do, and forbidding them to do that which, according to Mr. Adams' recollection, they were forbidden to do.

I think, therefore, that I must accept the view that there was no intention on either side to stop the sale of the Talmer machine, except as regards the detachable changing back; that, if necessary, the contract ought to be rectified accordingly. I do not think it is necessary.

Then comes the other point, which it is not necessary to consider very much in my view of the case, but still I will deal with it. It is said that it was Mr. Adams, the defendant's, duty to bring actions to compel persons to abstain from imitating the Eureka pattern. I do not think that is a true view of the law. From negative words a negative promise, "I will not permit," I do not think you can infer in law a positive promise," "I will bring actions to recover damages or to obtain an injunction." I think the one is very much wider than the other, and ought not to be inferred as a consequence from the other. But it does not follow that Mr. Bousfield's client might not be able to claim damages, and if I thought that the two cameras or the two changing backs were of the same pattern and appearance, then I should hold that Mr. Bousfield's client was entitled to recover damages, although I could not grant an injunction in reference to the case of the Talmer, nor in reference to any other case, because no other case has been made out or suggested I think as regards the question of similarity, the case of what has been referred to as the Adams camera is well within the other cases. If the Talmer camera is not within the proviso, *a fortiori* the Adams one is not; therefore, I think, the action must be dismissed with costs.

* * *

Mr. Dore, the well-known lantern slide maker of Sandown, Isle of Wight, is sending a monster exhibit of no less than 300 lantern slides to the Chicago exhibition.

Mr. C. S. Rothwell has opened a photographic store at 8, St. Mary's Street, Deansgate, Manchester, and lays special stress on the supplying of all goods of the best quality and only after having been tested.

Dipping Bath Development.—Dr. A. Meydenbauer, in an article in the *Pacific Coast Photographer* of January, states that dipping-bath development (*Standentwicklung*) has been in use for three years at his own establishment, where large numbers of negatives have to be produced after methods certain to give good results. The principle of this development is the prolonged action of a very diluted developer contained in a dipping bath, which being provided with grooves, admits the simultaneous treatment of several plates. He advises the use of pyrogallic acid only for this process, and states that negatives so produced show a very fine grain and a range of gradation even in the highest lights, which no other method gives. He gives the following formula for ordinary work:—

1 to 10 solution of soda sulphite	100 parts
1 to 5 solution of potassium carbonate ...	100 ,,
Water	10,000 ,,
Dry pyrogallic acid	2 ,,

While for instantaneous work he gives the following:—

1 to 10 solution of soda sulphite	100 parts
1 to 5 solution of potassium carbonate ...	100 ,,
Water	3,000 ,,
Dry pyrogallic acid	$1\frac{1}{2}$,,

To obtain the very best results, thickly coated plates of a medium rapidity and with no tendency to frill should be employed.

Reviews.

Elementary Photography. By John A. Hodges. Published by Hazell, Watson, and Viney, Ld., 1, Creed Lane, E.C. Price 1s.

This work, which forms Vol. VII. of the AMATEUR PHOTOGRAPHER'S Library, appeared, as our readers will doubtless remember, in our pages week by week. It would seem, of course, almost impossible for any author to write an elementary handbook to photography without repeating what has so often been said before; still, in the work before us Mr. Hodges has at least laid down clearly the foundation of what should enable any tyro to turn out good work. One well-tried formula or method of procedure has been described in each department of photographic work, and in such simple and easy language with an avoidance of technicalities decidedly commendable.

Die Photokeramik. By J. Krüger. Revised by J. Husnik. Published by A. Hartleben, Maximilienstrasse, 8, Wien I. Price 2s. 6d.

Many years back ceramic enamels were much in fashion, and heavy were the prices obtained by professionals for them. Lately we have seen a tendency to a revival—and deservedly so, for of all permanent photographic processes ceramic enamels will take the first place. This handbook treats of the whole subject in the exhaustive manner for which German writers are noted. Not only is the working of the process described, but also the composition and method of preparation of the various fluxes and colours given in detail. It is the most complete handbook yet written on the subject. Enamelling upon glass, porcelain, and metals is also included.

Photographische Optik ohne Mathematische Entwickelungen. By Dr. Adolf Miethe. Published by Rudolf Mückenberger, Dessauerstrasse, 13, Berlin, S.W. 46.

Dr. Adolf Miethe, the editor of *Photographisches Wochenblatt*, has for long been known for his clearly written articles upon photographic optics, and the present work from his pen is welcome, as it is written in plain and simple language without a single mathematical formula to bother the non-mathematical reader.

The work opens with an explanation of the leading principles of light and the optics of mirrors, refraction, dispersion, and reflection. The simple forms of lenses, the aberrations or faults to which all lens systems are liable are next fully treated of, and this part of the work alone is the simplest and clearest yet written, the only one at all approaching it being Schroder's well-known *Elemente der Photographischen Optik*, but which is unfortunately a little too abstruse for ordinary readers. The principal types of lenses are next considered and explained, and the final chapter is devoted to the practical testing of photographic lenses, and this is treated very fully, and yet in such a manner that any practical photographer can satisfy himself as to the perfection of any lens he may have. The book is well printed and illustrated with numerous diagrams.

Taylor, Taylor, and Hobson's Improvements in Lens Fittings.

A pamphlet descriptive of this firm's improvement in lens fittings has reached us, which sets forth the great advantages of this system, which will inevitably be sooner or later adopted by all lens makers, some of whom have, we understand, already adopted them. The adoption of these standard screws and fittings is a step in the right direction towards the adoption of universal standards, and though but a small step, still it is one which should be encouraged by all.

Mawson and Swan's Exposure Note Book. 33, Soho Square; and Mosley Street, Newcastle. Price 3d.

This is a convenient little note-book, containing ruled pages, sandwiched in between tips and dodges of practical value and formulæ for the well-known Mawson and Castle plates.

We extract the following useful table of the "relative values of Hurter and Driffield's sensitometer numbers in seconds exposure:—

H. and D. Sens. No.	Camera Exposure.	H. and D. Sens. No.	Camera Exposure.
10	12 sec.	60	2 sec.
20	6 ,,	70	$1\frac{5}{7}$,,
30	4 ,,	80	$1\frac{1}{2}$,,
40	3 ,,	90	$1\frac{1}{3}$,,
50	$2\frac{2}{5}$,,	100	$1\frac{1}{5}$,,

June 21st, midday. Light mean. Doublet lens. Stop, *f*/64."

The Camera, and How to Make it. By Watkinson Bros., of Harrison Street, New Briggate, Leeds. Price 3d.

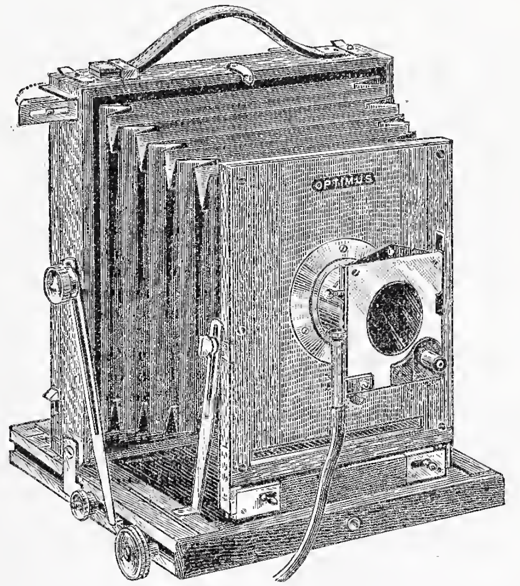
This book will be found exceedingly useful to all amateurs who wish to dabble in camera making. Explicit directions with diagrams are given for making all parts of camera bellows, and a convenient price list is included at the end. Easy instructions are also given to take and finish a photograph.

* * *

Apparatus.

THE "OPTIMUS" PATENT LEVEL.

PERKEN, SON, AND RAYMENT, of 99, Hatton Garden, E.C., have sent us a sample of their new level, which is shown affixed to the camera in accompanying illustration. The level is neatly set in a brass socket, which turns on a pin, so that it may be used to level the camera both ways, and a little slit at the top enables one to see easily the position of the bubble. It is turned out with the finish and nicety characteristic of this firm's work. Price 5s.



THE "PERFECT" SENSITISED PAPER.

Messrs. Williams, Read and Co., of 20, Vartry Road, Stamford Hill, London, N., have sent us samples of the above paper, which, in our hands, has yielded prints of good quality, which tone readily. It is quick printing and has no smell, and from our trials has neither mealiness nor tendency to blisters. It is to be obtained in the usual four tints; price 13s. 6d. per quire, 10d. a sheet.

Photographic Procedure.

BY E. J. WALL,

Author of "The Dictionary of Photography."

SECTION VI.

DEVELOPERS AND DEVELOPMENT.

(Continued from page 342.)

Pyro and Soda.—The soda developer has somehow or other come again into general favour lately, especially for instantaneous work. Of course, every well-known worker has his own pet formula, but a good all-round one is the following, which was suggested first by Cooper, in 1885, and modified by Eder and others.

(1.)

Distilled water	500 parts.
Sodium sulphite	100 "
Sulphuric acid	6 drops.
Pyrogallol	14 parts.

(2.)

Sodium carbonate (crystal)	50 parts.
Distilled water	500 "

For use mix equal quantities of each solution and water.

For ordinary work with slow plates no bromide is necessary, provided one is tolerably sure of one's exposure; but if this be not the case, then it is advisable to use a little bromide, for when using soda as the accelerator, bromides act very powerfully as restrainers, at least three times as powerfully as with ammonia, if not more.

Keeping to our plan of taking typical cases which may occur in ordinary work, we first consider the case of *under-exposed plates,* The best plan to pursue for under-exposure, where it is known to exist, as in instantaneous work, is to soak the plate for a few minutes in the alkali first, using for a quarter-plate half a drachm, for a half-plate one drachm, and so on; allow the plate to soak in this. Mix the normal proportion of pyro, omit bromide, and pour the soda solution from the plate into the measure, reapplying to the plate, and allow development to proceed, and should the details in the shadows hang fire, then one may add about ten drops of 10 per cent. solution of ammonia, which will hasten matters; but all plates will not stand this, green fog at once ensuing, especially with rapid plates. A far better plan is to dilute the normal developer with an equal quantity of water and give the plate time; the same plan may also be used with advantage with portraits and all subjects which have a tendency to harshness of contrast; and where there are great contrasts, as in whitewashed cottages and dark foliage, it is advisable to add even three times the normal quantity of water.

Over-exposed Plates.—For over-exposure, both in the case of soda and potash, bromide may be used, but it must not be forgotten that it is much more powerful with potash than with ammonia, and more powerful still with soda than with potash. An extremely useful method of development, especially for beginners, who are never sure of having given correct exposure, is that with citric acid or citrates, as suggested for ammonia. As, however, there are many beginners who are unable to adapt anything, but require hard and fast formulæ, we amplify a note we gave in the last volume, page 479.

Supposing we have a plate, the exposure of which we do not know, or which has been exposed on a subject with great contrasts, we shall, in the ordinary course, use the normal developer, and spoil our plate, but if we commence with only one-fourth of the normal quantity, and allow the details to appear without any regard to density, we may, when sufficient detail is out, add citric acid or a citrate, and stop the appearance of further detail, and gain density by adding a developer strong in alkali and pyro. The citrates are more convenient to use than citric acid itself, and we may make stock solutions of these and keep them practically *ad infinitum* with care.

Stock Citrate of Soda Solution.

Citric acid	720 gr.
Carbonate of soda	1,440 "
Distilled water	10 oz.
Salicylic acid	10 gr.

Stock Citrate of Potash Solution.

Citric acid	720 gr.
Carbonate of potash	884 "
Distilled water	10 oz.
Salicylic acid	10 gr.

Concentrated Soda Accelerator.

Carbonate of soda	1,600 gr.
Bromide of potash	200 "
Glycerine	1 oz.
Distilled water	6 "

Concentrated Potash Accelerator.

Carbonate of potash	924 gr.
Bromide of potash	200 "
Glycerine	1 oz.
Distilled water	6 "

When preparing the stock citrate solutions the operator must be careful to mix them in a sufficiently large open vessel, as the evolution of carbonic acid is so great as to make the solution boil up all over the place. In very cold weather, too, warm, distilled water may be used, otherwise the cold produced is so great as to cause ice to be formed.

Having allowed development to proceed with one-fourth of the normal quantity of alkali till all detail is out, about half a drachm of stock citrate solution is added for every ounce of developer used, and the dish gently rocked for about five minutes, and then the concentrated stock solution added in quantities of five drops for every ounce of developer, and density will gradually appear.

With pyro-soda development we have yet another factor to take into consideration, and that is the colour of the film. With prolonged development this is an intense yellow, which makes the subjects far richer in contrast, but this may be avoided by immersing the plate in a bath of acid chrome alum, and well washing prior to fixing, or to using an acid fixing bath, or a bath after developing, composed of chloride of sodium (salt) and acid sulphite. This, however, will be treated of under Fixing and Clearing.

The Fixed Alkalis Combined.—Many workers prefer to combine soda and potash in the accelerator, stating that by doing so they get all the advantages of each and the disadvantages of neither. Be that as it may, I personally use a mixed fixed alkaline accelerator for all landscape work, and one which has for many years been known as the American standard. The formula is :—

Carbonate of soda	1 oz.
Carbonate of potash	1 "
Ferrocyanide of potash	1 "
Distilled water	10 "

Two drachms of this is as a rule the maximum quantity for a half-plate, but I still adhere to the old rational development method of adding the alkali by degrees.

Possibly some may wish to know why ferrocyanide of potash is used. I have always held that this gave greater brilliancy and pluck to the negatives, but of this of late I have had theoretical doubts from statements made in the French press, by a well-known chemist; but whether it does so act or not; I still adhere to its use.

(To be continued.)

OUR LANTERN SCREEN.

A Monthly Supplement to the "Amateur Photographer."

No. 6. MARCH 31, 1893.

Biunials.

By D. W. Noakes, Greenwich.

From single oil to single limelight lanterns is an easy stage, and one that many amateurs have already bridged, many possessors of single lanterns having both radiants fitted to their lanterns. But from single to double lanterns the gap is wider. I do not mean that the difficulties of manipulation are increased, for, on the contrary, they are hardly added to, and, in fact, on some points are lessened. For a public demonstration of a scientific lecture a single lantern will do, but if the entertainment is to be of a popular recreative turn, no doubt we must use at least a biunial lantern; and if we intend competing in the highest class lantern exhibitions, nothing short of a triple lantern will suffice.

Oil-light dissolving-view lanterns are fast dying out, except perhaps in out-of-the-way places, our audiences having been trained to higher things; and so I shall confine myself to limelight dissolving-view lanterns, and in this article to biunials only, reserving for a future occasion my remarks on triple lanterns.

I have referred in a former article to the body of a single lantern, and should like to say that in the construction of a biunial body more care is necessary. Well-seasoned wood only should be used, and good workmanship is absolutely necessary.

It is usual to frame up and groove and tongue the sides, and a stereotyped trade pattern can be found at many opticians' which I regret to say is open to much criticism. How often do we see the jointing of these instrument, all apart after only a few times of using. The fact is, even if the best wood and most careful work are put into the instrument, that failures will occur, and experience teaches that besides the usual tongue and groove, it is necessary to use dowel pins and other means as well to resist the shrinkage caused by heat of the radiant.

The blow-through jet does more injury in this direction than the mixed or chamber jet, in consequence of the much larger hydrogen flame usually present when giving off its maximum amount of light. Therefore the body of a biunial should have special care exercised in its manufacture. Artificial means should be used to dry the wood before made up, only well-seasoned wood should be used, and its design should be such as to resist shrinkage. Some text-books tell us it is necessary to have four doors to our biunials, and they also give us the reason why. We are told that at some institutions and halls want of space renders it impossible to work on the right-hand side of the lantern, and doors are necessary on the left so that the operator can work on the left side. Now to my mind there is an amount of absurdity in this statement which a long practical experience gained at many hundreds of lantern shows fully bears out. If there is room for the operator on the left of his instrument I cannot, for the life of me, see why he and the instrument cannot change places. I have been to all kinds of halls, both convenient and inconvenient for lantern showing, but I have never yet been where there existed the shadow of a reason for working on the left-hand side of the instrument, unless the operator was a left-handed man.

In the old days when it apparently took two operators to work one lantern, there may have existed a reason; but in present practice four doors to a non-dividing biunial are not only useless, but, in my opinion, distinctly disadvantageous.

When a biunial is made to divide and work side by side, a reason exists for four doors, and instruments of this pattern should be made somewhat larger.

The disadvantage of which I have spoken is one which apparently many opticians seem to ignore, and that is that four doors prohibit a good system of ventilation in the interior of the body; in fact, in many instruments I have seen no regard whatever seems to have been given to this point, and we find heavy heat-absorbing linings with thick iron or brass plates carrying jet pins, and very often jets and mechanical attachments, whose weight cannot only be described in ounces, but also in pounds, and no provision whatever is made to get rid of the products of combustion and heat of the lower lantern, except by passing through the upper one.

Arrangements of this kind remind me of the patent meat-cookers, in which a ball of metal collects heat and conducts it to the very centre of a joint along a small stem.

There is no doubt the more we can reduce the mass of metal and induce currents of cool air to pass through the instrument, the longer will be the life of the body, and less will be the risk to the condensers.

The internal lining should, therefore, be of thin metal of low conductivity, designed in such a manner that currents of air are continually passing through the instrument and around the condensers—a sort of air pump, having for its motive power the heat generated by the jets. No well-designed instrument should admit of the heat or products of combustion of one lantern passing in to another. If proper consideration is given to this matter, it is quite practicable to construct instruments with compartments for each optical system, with sectional measurements only 2 inches larger than the condenser.

Another fault also to be found in the stereotyped trade pattern, is the distance apart of the optical systems. No doubt bad ventilation is one reason why this exists. To avoid injurious effects of heat the body is made unnecessarily large, and to keep some sort of symmetry in the instrument the fronts are fixed some distance apart. It will be seen on consideration that in a biunial the only correct position for the upper optical system is where the lower is, or vice versa, and that separating the two optical axes introduces distortion.

This, in some cases, is extremely marked, when working with short-foci objectives near the screen, the percentage of error being greater then than when using longer foci objectives at greater distances. If a pair of animated statuary—that is, one coloured and one plain — are introduced into a biunial lantern and registered upon the screen, one image will be found longer than the other, but if the slide from the top lantern is put into the bottom, and the slide from the bottom put in the top, we shall find the slide formerly the longest is now the shortest. This error must to some extent always be present, as both optical systems cannot occupy the same place, and one must be tilted upwards and the other downwards in order to superimpose the discs upon the screen, but still the error need not be added to by separating the optical systems any further than actually necessary.

Referring to the optical system reminds us of how in some lanterns condensers are continually cracking. This is not always the operator's fault, but often the fault of the limes, which pit far too easily, forming a conical reflector, reflecting not only the heat rays, but actually turning the gases right on to the condenser.

Another reason also exists in mounting the inner half of condensing lens too tightly. This lens should always be loose enough to turn in its cell, and those of our own manufacture are also provided with another precaution and mounted in specially soft brass castings, which admit of greater expansion than the glass forming the lens.

Condensers frequently suffer through the lantern being near an open door and subjected to cold draughts of air, and when the condensers are fancy ones, costing four or five pounds each, it is no joke to break one each evening. It is not always the most costly limes that are the best, neither do fanciful names help them much in practice. In these days of compressed gas and large-bore jets, much attention should be given to the selection of suitable limes.

But we are digressing from biunials, and must come back to another error we find too often in the stereotype patterns, and that is, the baseboard, though often elaborately moulded, is nine times out of ten much too small. The baseboard should be long enough to extend beyond the front stages and objectives, and also project 3½ to 4 in. beyond the back of the lantern. I have seen instruments with such short baseboards that when the front tubes have been drawn out for long-foci lenses the instrument has been in great danger of toppling over frontwards, and has rendered itself very sensible to vibrations caused by stamping on the floor, etc., making the picture on the screen extremely lively.

We have argued in some parts that there is too much "biunial," but there are few lanterns with too much baseboard.

A good, large baseboard has many advantages. It protects the lantern during transit, and admits of the lantern being put away in its cabinet, with jets, dissolver, and other fittings attached, saving much time both in setting and packing up. It makes the cabinet slightly larger, and adds, perhaps, 2 lb. to the weight, but this is far more than outset by the greater stability gained both in the cabinet when used as a stand and in the lantern. The large baseboard also admits of another advantage, which should be found fitted to every biunial, and that is a rising elevator, by means of which the body of the instrument can be tilted from the base.

We have introduced an elevator clamp that admits of raising the lantern, and, by turning the "Tommy" lever, the instrument can be clamped at any angle, and it is surprising how much this simple piece of mechanism is missed after once using. We have three triple sets always in readiness for our own lectures and lantern entertainments. Two are fitted with the elevator, the third, being an earlier pattern instrument, is without it, and whenever circumstances admit of choice, it is 100 chances to 1 that the non-elevating lantern is the one left at home, and it is a matter of continual wonder how we managed before the advent of the elevator.

There is also another trouble that occurs in the stereotyped biunial; it is extremely difficult to keep perfect registration. Experience seems to locate the reason principally in the long hinge with which the front stages are hinged to the body, so much so, that of late years I have in all designs adopted a simple screw and long hole, which, certainly in practice, gives less trouble. Accurate registration is always difficult and is easily upset, especially when the instrument is inflicted with telescopic draws or front tubes rolled up from sheet brass. Lock nuts for locking the stage in position are absolutely necessary, and, I believe, are now common to most biunial lanterns where chemical tanks or wide slides are introduced. The stages should be adjustable and also fitted with screw-clamp for gripping a tank or slide if required.

Another important item in connection with a biunial lantern is the dissolver. A bad dissolver will ruin good jets, spoil the show, blow off tubes, and create troubles untold; and I regret to say there are dissolvers in the market that are absolute trash—badly designed and badly made, a few years ago, in the time of bag pressure, there was much less strain on the dissolver, but in these days of compressed gas there is no piece of lantern apparatus needs more care in manufacture. On some future occasion I shall, perhaps, have more to say on this very useful adjunct to the lantern.

⁂

Lantern Slides by Camera Reduction.

By F. C. BEACH.

In our previous number the method of making lantern slides by contact was fully described; but while this is satisfactory with negatives of small size, the method of reduction in the camera is necessary when large negatives are employed—say from 4 by 5 or upwards. It will be our purpose to explain two methods, one of which we think is somewhat novel. The requisite for daylight reduction is a board three or four feet long, supported at one end by a window-sill and at the other by a tripod bench or top of a chair, pointing preferably at an angle upward to a north sky. Where this is not to be had it may be directed towards a large finely-ground glass pane in a window against which the sun shines. On the front end of the board is secured an upright transverse board with a large rectangular aperture, in which fit frames or kits held by flat springs, for accommodating different sizes of negatives. The aperture should be square, to allow the apertures in the kits to be turned vertically or horizontally. The camera (preferably one having a rising front and a back focus) may be small, but mounted on the board in such a way that the centre of the lens will be opposite the centre of the negative aperture in the front board. It is well to provide six small double plate-holders, that the exposing may be all made at one time. In the 3¼ by 4¼ plate-holders strips of cardboard or fine strips of wood, ¼ of an inch wide, will have to be inserted in order to exactly centre the 3¼ by 4 lantern plate. The space between the negative and camera is usually covered with a light dark-coloured cloth supported on a light lath, the latter having its front end on the negative board and rear resting on the camera.

Usually rapid rectilinear lenses are employed, but where an economy of space is necessary, wide-angle short-focus lenses will answer as well.

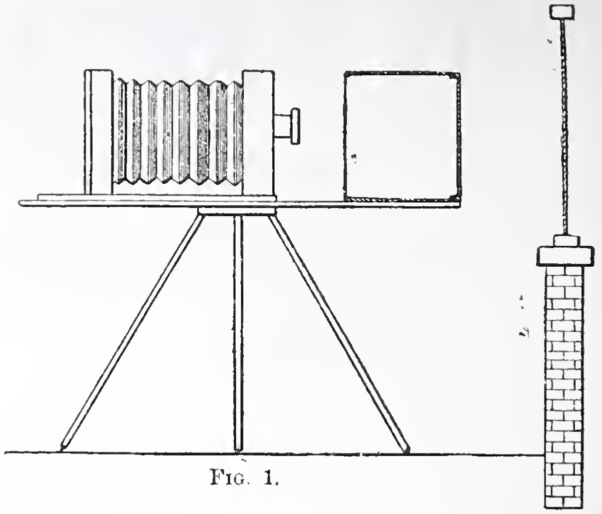


FIG. 1.

In fig. 1 is illustrated a simple plan, consisting of a board about 30 in. long supported on a tripod; on the front is a box with the side toward the camera taken out, while the other side has the aperture and cleats secured on the outside for holding the negative frames. These latter slide horizontally to either side, thus permitting one side of a negative to be brought opposite the centre of the lens. In addition to this convenience, the negative frame may be attached to a board having the same sized aperture as the stationary front board, and pivotted to the latter at the top, which allows the whole to be swung to one side or the other, and the consequent levelling of an object on the negative that is out of plumb, as is frequently the case in views taken with hand-cameras. Fig. 2 shows in a rough way the manner in which this contrivance works, and is the same as that employed and described by Mr. Charles Simpson, quite an expert slide maker. It is obvious, also, that the same result can be obtained by using a revolving back camera or a spiral revolving device attached to a board occupying the usual place of a large plate-holder, which will enable the plate to be adjusted to any angle necessary to bring the image upon its true alignment.

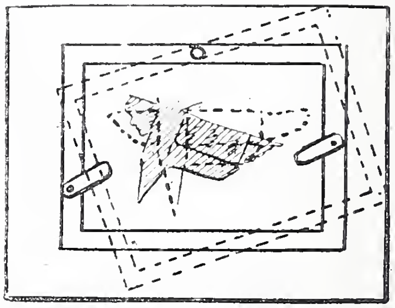


FIG. 2

Where one is in the habit of making slides regularly from large negatives, a permanent arrangement like that described by Dr Charles L. Mitchell in a previous number of the American *Amateur Photographer* is advisable, on account of its great convenience and facility of movement.

Fig. 3 is a side elevation of his stand and camera, showing a weight at the rear. The camera is supported on a sliding stand, and its position is easily changed.

Fig. 4 shows the front portion of the apparatus with the sliding frames.

When the negative is inserted in the frame, by looking through the camera the position of the negative vertically is quickly changed and regulated by pulling on the cords or releasing them by raising the balance-weights, so that it is but a matter of a few seconds to adjust the negative to a central or other position.

Another simple method is to utilise a small room having one window in it, by blocking out the whole window with black paper, excepting space for the adjustment of the negative frame; the camera, on tripod, board or table, is arranged in front of the negative. The space, in this case, between the negative and camera need not be protected.

Making slides in the camera by the aid of artificial light is not as easy or as quick as by daylight. Some of the methods employed are to illuminate a white surface from each side by powerful lamps, or incandescent electric lamps, which is located in front and a short distance away from the negative, using the evenly reflected light as means for equally illuminating every portion of the negative. Another is to use a large parabolic reflector and project a parallel beam of light (gas or kerosene) upon a sheet of ground glass, the negative to be a short distance away from it. Still another method is to concentrate the divergent rays of an electric arc lamp by means of a lens in a parallel beam upon a ground glass in front of a negative. A more expensive plan, but one that is quite simple, is the utilisation of the enlarging idea. Fig. 5 shows the back of a camera in front of a blocked-out window. The negative is put in place of the ground glass; the size of the projected image is varied according to the distance of the lens from the rear of the camera. On the same shelf with the camera is an upright sliding screen, clamped in place when the right size of image is obtained. A white cardboard, the size and thickness of the plate, is put on the screen, and when the proper size and focus are reached the lens is capped with a red or yellow glass, and the cardboard removed and a sensitive plate substituted. Exposure is made by removing the cap, and if it is desired to prolong the exposure in dense portions of the negative, a card with a small hole punched through it is held in the hand between the lens and screen, which cuts off the light from striking the plate, except that directed upon it from the card. This plan was illustrated by Mr. G. G. Milburn some time ago, and is quite effective. Instead of having a vertical screen to support the plate, a prism reflector can be attached to the lens, which will project the image downward, as shown in fig. 6. This permits the plate to be readily turned at any angle should the image on the negative be crooked. The film side of the negative should also be turned away from the lens. The mode of illumination by artificial light shown in this figure consists of an electric arc light placed in the focus of a pair of condensers large enough in diameter to fully cover the plate used, having between each a thin mud-ground glass of very fine grain. The light is thus equalised. The exposure is much shorter than for an enlargement, since the plate has to be near the lens. A lens working with a rack and pinion is preferable, as also a front-focus camera having a rising front.

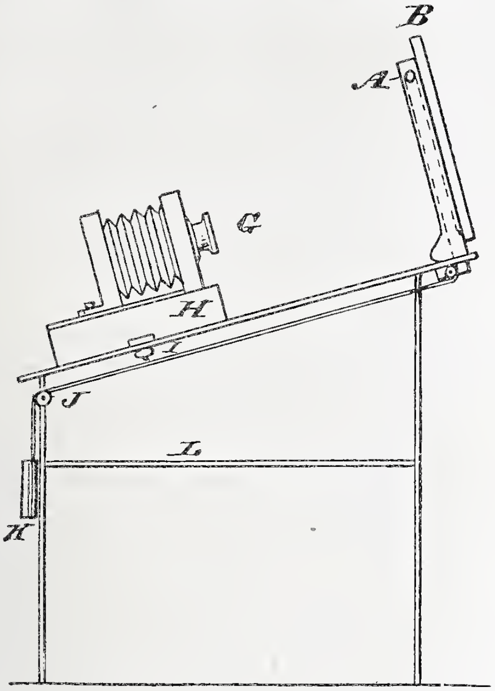


FIG. 3.

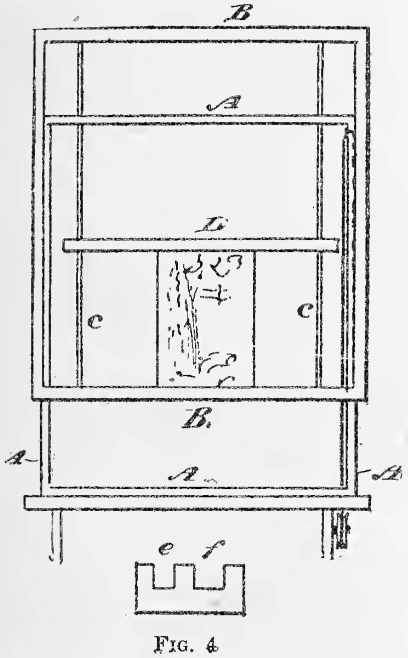


FIG. 4.

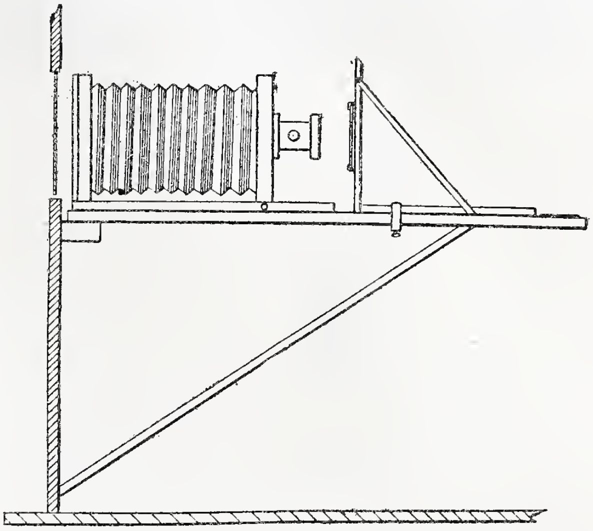


FIG. 5.

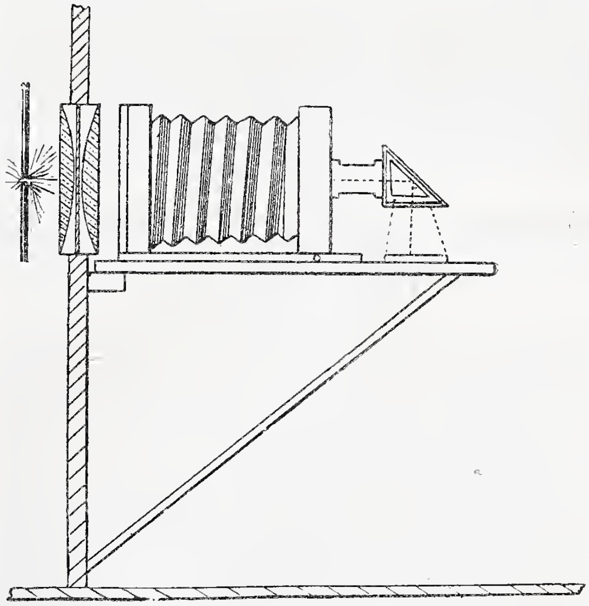


FIG. 6.

Instead of using electric light, the calcium light, placed in a vertical position as shown in fig. 7, may be used. It can, with the camera, be clamped to the vertical side partition of a room, and be first adjusted on the outside. A dark curtain or tent will protect the lower part from the outside light. On a shelf below is seen the exposing table, adjustable vertically by a thumbscrew for aiding in focussing. On this little table is put the focussing card; then, when the lens is capped with a red glass, the sensitive plate is located and the exposure made. The absence of the use of plate holders and ready adjustment of the plate without springs or frames is one of the advantages of this plan. When the screen is used vertically a revolving support for the plate is desirable, which can be easily made. As to exposure in the camera, it should be a trifle prolonged in order that all the details in the high-lights may be easily brought out.

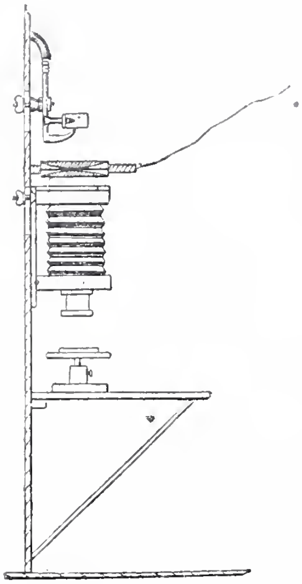


FIG. 7.

For small negatives, or parts of them, it will be possible to utilise the condensers of a magic lantern for equally illuminating them in slide making. It is obvious, too, that an attic room in a house could be utilised by cutting out a place for a shaft in the roof for the vertical admission of light, having the camera suspended downward, and the sensitive plate supported on a platform underneath. The suggestions described may be turned to advantage by any ingenious amateur, and, it is hoped, will be the means of starting many into the making of slides. At another time the matting and mounting of lantern slides will be explained.

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Practical Remarks on Lantern-Slide Making.*

BY J. K. TULLOCH, M.B.

AT the fag-end of a meeting last session, Mr. Baird passed through the lantern for me a number of my slides, interesting chiefly because made by some of the less used processes; and, as I have been repeatedly asked by members of the society to show them again, I have extended the idea somewhat, and pose to-night rather as an experimentalist than a practical slide-maker.

When I take up a process, I generally keep at it until I have made what appears to me the most of it; in any case, I never stop short of being able to produce presentable results by it. In many instances I have gone on until such time only as I had mastered the process and produced one or two slides by it. It frequently happens that a process may be capable of giving very fine results at times, and yet not such a process as one would care to work constantly. In such cases, it is excellent practice to make a small study of the subject, and after attaining success to "leave it for fresh fields and pastures new."

You will please understand, therefore, that the slides which are to be shown you are not shown as models of what slides ought to be, but merely as fair specimens of the various processes they are to illustrate.

Almost every process requires (if one is to make the most of it) a special quality of negative. It follows from this that I have had to pick out from my negatives one suitable for the process in hand rather than one artistically good. Let no one, therefore, go away, saying there is nothing special in this slide or that slide; the production of a pretty picture was not always the aim of the experiment.

While, therefore, safeguarding myself against the imputation of putting these slides forward as being something specially fine, I, nevertheless, claim that they represent fair average work of the various processes touched upon, and such as any one designing to work any of these processes may attain to, with the moderate care which the average amateur bestows on his work.

As to the precise practicability in every-day work of these out-of-the-way processes, I will speak more particularly later on. My remarks will apply to slides in collodion wet and dry (but not with collodion emulsion, with which I have done very little), carbon, gelatino-chloride, gelatino-bromide, powder process slides, Alpha and albumen. I include the better known processes for comparative purposes.

As conclusion to this introduction, I may say that most of the slides have been made quite recently, that is to say, I have prepared the most of them to refresh my memory for, and to serve as illustrations to this paper.

With the exception of slides done by the Woodburytype process, collodion is the process adopted by probably ninety-nine per cent. of the professional slide-makers. It seems absurd, therefore, to include this as one of the "out-of-the-way" processes. It is so, however, in reality as far as the amateur is concerned. From time to time attempts are made to show how simple the whole thing is and how unobjectionably simple it truly is, but not unobjectionable. What are the claims made on behalf of the collodion slide? They are these:—First, absolutely pure high lights; second, vigorous shadows; third, good gradations; fourth, agreeable colour. These good qualities a collodion slide generally has, but there is one good quality which a slide ought to have which the vast majority of collodion slides have not, that is, transparency in the shadows. I maintain that with *suitable* negatives gelatino-bromide does come within measurable distance of a collodion slide with a tithe of the trouble. To test this point, we will ask Mr. Baird to place the two slides marked 1 and 2 in the lantern. No. 1 is a collodion slide by Wilson, of Aberdeen, a master of the art of slide-making; No. 2 is a gelatino-bromide slide from one of my own negatives on a commercial gelatino-bromide plate.

I maintain, and I think you will agree with me, that while there is a difference, the collodion slide is not immensely better. If collodion cannot do *very much* better than gelatino-bromide, I hold that, to the amateur, the extra mess and trouble simply exclude collodion.

My remarks heretofore have related to wet collodion, but very fine slides may be made on dry collodion plates, both prepared.

Slide No. 3 was made as follows:—A plate of glass was cleaned and coated with collodion, dipped in a bath of silver thirty grains to the ounce, and then washed, flooded with an infusion of pure coffee, and dried. After exposure under a negative to gaslight, the transparency was developed with acid pyro and silver. It came up the colour you see it, no toning being necessary. Of course, it was fixed in hypo.

Various preservatives, other than coffee, may be used, and different colours obtained in the slide. An infusion of tea gives a brownish tint, and tannin gives a very fine purple-blue—better, I think, than a wet-collodion plate toned with a sulphide.

I sometimes wonder why it is that dried bath plates are not supplied by the dealers. They are extremely easy and certain of preparation, would compete with gelatine plates in cost, and, preserved with a solution of albumen, are hardy enough to stand pretty rough handling.

My best collodion slides have been prepared by this dry method. I selected this one to show the peculiar colour got by a coffee preservative. For those who care to try the collodion process, I would advise a preservative of ten grains of tannin, and ten of sugar candy, to an ounce of water. Plates so prepared give excellent slides.

We pass on now to the consideration of carbon slides. Carbon is said to be *the* process for producing slides of the two extremes—best and worst. I must say that no process in photography came so near to going up my back (as the saying goes) as the production of carbon slides. The Autotype Company, in their manual, say that *very fair* slides may be produced by the carbon process. I think that this is over-modestly stated. Of course, a good deal depends upon what qualities one likes in a slide; but, for myself, I only wish I could produce all my slides in carbon.

Scattered throughout photographic literature are articles on the production of slides in carbon without number. According to most of the writers, it is an easy process, according to all a beautiful one. To read the commonplace and general directions given would lead one to suppose that mistake was impossible. Methinks some of those who have written on the subject have never made carbon slides. I cannot give you a better idea of the troubles one may meet, and how they may be overcome, than by giving you a short history of my own experience.

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* Read before the Dundee and East of Scotland Association.

When I first determined to try the making of carbon slides, I was even then a fairly efficient printer in carbon, and had plenty of material by me. I had no special transparency tissue, it was true, but had I not read again and again that ordinary tissue would do excellently—indeed, in some cases, better than the special transparency tissue? I made the experiment. Result, universal flatness and weakness. I tried a denser negative. Improvement, but not much. Then I would intensify the slide. How I laboured at this! At last, after a great many failures, I got one good picture. Mr. Baird will show it as slide No. 4. This slide, after development, was soaked in an infusion of logwood, lightly washed, and soaked in a weak solution of sulphate of iron.

The great trouble in this staining process is this, that, do what you will, your high lights take on the stain. I am aware that, theoretically, the high lights in a carbon slide ought to be bare glass; but, practically, there is an imperceptible skin—enough, when stained, to spoil the slide.

The picture on the screen is absolutely the only one I ever got with pure high lights by this staining method. I then sent for the special transparency tissue, and wish I had done so at first.

The special transparency tissue carries much more pigment, and pluck and density are now with suitable negatives quite possible.

My method of producing carbon slides is as follows: I cut a dozen or so pieces of tissue by means of a tin shape to exactly three and one-eighth inches square. I make a solution of bichromate of potash, one ounce in thirty ounces of water, and place the tissue in this—"over the head," so to speak. When they are quite soft and limp I take them out one by one, and place them face down on a piece of plate glass, and by means of a roller squeegee drive off the free solution hanging about them. I then take them from the glass, and place them face up on a blotting pad. Upon this they are placed in a locked press, and in the morning they are generally dry and ready to print. Much stress is laid upon the rate of drying, and being in a room free from fumes of gas. Working in this way, I have never had any trouble, and even in a moderately small press, if it is not damp, the tissue will dry in a night's time, and be out of the way of the light, fumes, or any other injurious influence. I have never found it necessary to dry the tissue on collodion plates. In the morning the tissue is printed under the negative. In mounting the tissue on the glasses for slides I had two troubles. First, the tissue would sometimes wash up, and, secondly, air bells would get between the tissue and the glass in spite of everything I could do. I cured these faults as follows:—If the glasses are thoroughly scoured with a clean rag and common whiting under the tap, and the surface not touched again with anything under the sun till the tissue goes on, it will stick like glue. As for the air bells, mount the tissue on the glasses under water which has been heated and then allowed to cool, and there will be no more trouble. *En passant*, I may say to those who are annoyed with air bells under their gelatino-chloride prints the same method will put an end to their troubles.

In developing carbon slides, beware taking too hot water to them. I am convinced that we would hear less of reticulation if more caution were used in this particular. As I am making no pretence to a complete guide to carbon slide-making, I content myself with these few practical remarks on the process. Even a suitable negative (and too much stress cannot be laid upon this), carbon slides, in my opinion, cannot be beaten. If it be asked, What is the special kind of negative? the answer is, that the negative must be extremely dense, with good gradation and very clear shadows. A hard black and white negative useless for any other process is about the thing for a carbon slide.

I may say that transparency in the shadows is the chief virtue in a carbon slide as against other processes. Mr. Baird will pass through one or two carbon slides unstained.

I have little to say on the gelatino-chloride slide. Altogether, I have not used more than four or five dozens of this plate, and, while the results were generally very fine, the developers were a pest to make up, besides being somewhat expensive. The variety of colour is very considerable, but not very thoroughly under control—at least, that was my experience. I was not so much taken with the process as to take to it as a standard method of slide production. Mr. Baird will show a few on the screen.

As to gelatino-bromide, that being the general method of slide production in use by the great bulk of amateurs, I would make a few general remarks only. In the first place, given a good negative, I have produced first-class slides by almost every advertised brand of lantern gelatino-bromide plate. At this moment, if I had to produce a slide specially fine, I would only stipulate to have the information of the maker's name. I have gone into this question pretty thoroughly, and am convinced there is little to choose between the various brands—I mean in the possibility of getting good slides from them. When I hear many complaints about bad plates, I always feel inclined to ask for a sight of the negatives which are being printed from.

There is a very widespread idea that a good slide can be made from any kind of negative by simply timing the exposure properly. This, I think, is erroneous. If you want clear, sparkling high lights with rich luminous shadows, you must have a tolerably vigorous negative with the necessary gradation in it.

However it comes about, I find I get better results by intensifying my negatives first. I bear this in mind in development, of course, and am content with a somewhat feeble image. I think I see all through better what I am doing this way. So long as you can see easily through the plate during development you are not working in the dark, but long before the negative is thick enough to do without intensifying the most of the plate is absolutely opaque, and you cannot tell how far the process has gone, perhaps much further than you want. I think the great secret of slide making is in having a good negative. To keep up a kind of consistency, Mr. Baird will pass a few gelatino-bromide slides through the lantern.

The next process upon which I would make a few remarks is known as the powder process. I am not aware that any one actually makes his slides by this process; but, as it has a certain interest and is an exceedingly beautiful process, I have made a fresh slide and will say a few words on the subject. To those who do not know anything about it, I may briefly say that the process is this:—A clean glass slide plate is coated with a watery solution of gum arabic, honey, and bichromate of potash. The plate is dried on the top of the dark-room lamp, and immediately exposed to daylight under another transparency. After a variable time depending on the light, from twenty seconds in direct sunlight to minutes in the shade, the plate is taken to the dark-room, removed from the frame, and a small quantity of impalpable powder placed upon the surface. A fine soft camel's-hair brush is now used to spread the powder over the plate, and in a few minutes it will be observed that the powder begins to adhere to the surface of the plate in an irregular way; in fact, it is a picture that is being developed. The explanation of this apparently extraordinary phenomenon is simple enough. The solution of gum arabic and honey is ordinarily very much prone to absorb water from the atmosphere and become sticky. When the bichromate of potash is added to it and the sun acts upon the mixture, it loses this property of becoming sticky. It follows from this that a plate coated with the mixture and exposed under a transparency loses its adhesive nature in proportion to the effect of light upon it, so that those parts exposed to the sun take on no powder, but remain pure glass, which makes your high lights on the contrary; the shadows having been protected from the light room get adhesive when exposed to the air and hold on to the powder when it is brushed over it. Since a transparency must first be produced by some other means, the powder process would seem to be "a round-about road for a near cut;" but do not forget that a powder picture is first permanent; second, you may develop at one part and leave another soft and hazy; and, thirdly, you have absolute control over the colour.

Having nothing else beside me at the time, I developed the picture shown with common soot from the chimney, which, as you will see, gives a kind of sepia tint. If any of you have not worked this beautiful process, let me urge upon you to spend some of your spare time upon it when the light gets good. I can promise you a real "eye-opener," as the Americans would say, when you see the picture develop the first time. It is simply astonishing. Please do not judge the capabilities of the process from this specimen. When I was working at it three years ago, I made two or three dozen of beauties, but have since given one away here, and another there, till I had not one slide left. I had, therefore, to make this one, and one cannot be expected to turn out a perfect slide at the first shot. Plumbago is often used as a developing powder; to my mind it gives an unpleasant colour to a transparency. There used to be sold a powder for this process, for the production of burnt-in enamel—just the very thing for transparencies. I wish I could have shown you a transparency developed with it—a beautiful rich, soft photographic purple. I do not, for a single moment, imagine that any one would adopt the powder process as a regular method of making lantern slides, but a trial of this beautiful process would well repay the time and trouble spent on it.

I have done a good deal with Alpha plates, and like them immensely. I have two practical hints to give which might be of service to those intending to try them; and the first is, that a very much softer and superior image is developed with carbonate of potash and hydroquinone than when the caustic soda is used. The second point is, that superior tones are got by simply adding a little gold to an alkaline fixing bath than by using a separate toning bath, or even the combined toning and fixing with sulphocyanide.

I had intended to say something on albumen slides; but it occurs to me that already this paper is long enough, and the days of albumen too long past to be of much interest.

Monthly Lantern Slide Competition.

ARCHITECTURE, EXTERIOR AND INTERIOR.

CLASS I.

*** Red. = reduction; con. = contact.

ASHTON, E. R. (Tunbridge Wells).—(1) "A Portico, Tunis;" (2) "Entrance to the Great Mosque," Kerovan." Red.; Thomas's hydro. Two beautifully soft slides.

No. 1.] "A Portico." [*E. R. Ashton.*

SILVER MEDAL.

OAKDEN, C. H. (East Dulwich).—(1) "The Choir, Ely Cathedral;" (2) "South Porch, Canterbury." Con.; slow, Paget; hydro. Just a slight tendency to hardness in both.

SELBY, HARRY (London).—(1) "Galilee, Durham Cathedral;" (2) "South Door, Barnard Castle Church." Red.; Ilford special; amidol. No. 2 decidedly inferior to the other.

SWINDEN, J. W. (Bootle).—(1) "West Front, St. Ouen;" (2) "In Lisieux Cathedral." Con.; Thomas'; hydro. No. 2 is not taken from a good standpoint at all.

FARMER, H. E. (Essex).—(1) "Sedilia, Furness Abbey;" (2) "North Aisle, Ely." Red.; Ilford special; quinol. Good work, but No. 1 inferior to the other.

MEYNELL, H. (Farley).—(1) "The Crypt, Durham Cathedral;" (2) "Picture Gallery, Hardwick Hall." Red.; Thomas'; hydro. Handicapped by an unpleasant greenish tinge.

PERKINS, T.—(1) "Town Hall, Cirencester;" (2) "Tomb of Bishop Giles de Budport, Salisbury." Red.; Edwards'; hydro. No. 1 is very fine, but No. 2 flat and poor.

KIDD, T., JUN. (Spain).—(1) "Fuente de Los Leones;" (2) "Ventena de Lindaragu." Con.; Thomas'; hydro. Both slides just a little too weak and wanting in contrast.

DAWSON, C. (Manchester).—(1) "Interior of Drawing-room, Lyme Hall, Cheshire;" (2) "Choir Stalls and Screen, Beverley Minster." Con.; Cadett; pyro-am. No. 1 too greenish, and No. 2 too heavy in shadows.

RUMBOLD, C. (Yarmouth).—(1) "Caister Castle;" (2) "Reredos, etc., in St. Nicholas Parish Church, Great Yarmouth." Red.; Cadett; hydro. No. 1 too brilliant and harsh.

ELLAM, J. E. (Yarmouth).—(1) "West Window, Whitby Abbey;" (2) "Choir Entrance, Fountains Abbey." Con.; Paget slow; quinol and soda. Two very fine slides, though a little too warm in colour for the subjects.

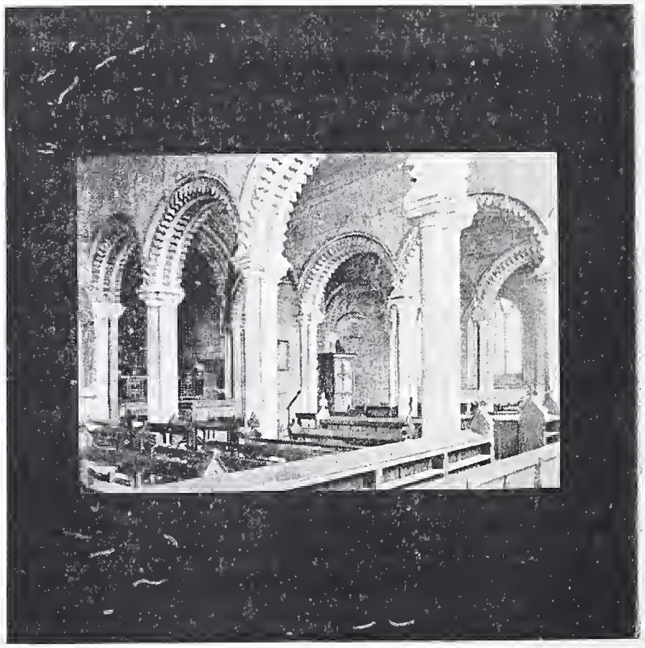
CLASS II.

REDWOOD, T. H. (Chingford).—(1) "Forest Hotel, Chingford;" (2) "Church of St. Iltutus, Llantwil Major, Glamorganshire." Red.; England's rapid chlor.; eik. hydro., carb. soda. Both slides of a nasty green tinge.

No. 2.] "The Choir, Ely Cathedral." [*C. H. Oakden.*

BRONZE MEDAL.

CHAMBERLAIN, J. (Tunbridge Wells).—(1) "Norman Doorway, Clymping Church;" (2) "Interior, Hastings Castle." Con.; Thomas'; sulphokinone. No. 1 stained, and No. 2 flat and weak.



N. 3.] "Galilee, Durham Cathedral." [*H. Selby.*

CERTIFICATE.

ELLSWORTH, W. S. (Huyton).—(1) "Exeter Cathedral;" (2) St. Broyan's Church, Cornwall." Con.; England; hydro. Far too heavy and black.

DEMORGAN, S. (Ryde).—(1) "Quarr Abbey, Isle of Wight." (2) "Carisbrooke Castle." (1) Con.; England's chloride; hydro. No.

2 is a beautiful effect of light and shade, but No. 1 is far too harsh and black.

Davidson, W. N. L. (London).—(1) "A Memorial, Westminster Abbey." (2) "Cottage Mantelpiece." Ilford special; hydro. No. 2 utterly without interest.

Dan, H. (Northfleet).—(1) "Choir, Rochester Cathedral." (2) "Nave, Rochester Cathedral." Con.; Thomas'; amidol. Very poor, washed-out things.

Male, E. W. (Ryde).—(1) "Whippingham Church, Isle of Wight." (2) "All Saints', Ryde, Isle of Wight." Con.; Edwards'; pyro and ammonia. A little too weak.

Dawson, Miss A. J. (Cardiff).—(1) "Dartmouth Church Pulpit." (2) "Kilpeck Church." Red., con.; Edwards' special, Alpha; hydro. No. 1 is very fine, but No. 2 is a fearful colour, and has no pure whites.

Ellis, J. W. (Liverpool)—(1) "Porch, Broadway Church, Dorset." (2) "Porch, Abbotsbury Church, Dorset." Con.; Paget slow; hydro. soda. No. 2 a very poor fogged slide.

Birkbeck, J. T. (Lincoln).—(1) "Bishop Kaye's Tomb, Lincoln Cathedral;" (2) "Transept Doorway, Lincoln Cathedral." Con.; Fry; hydro. Under-exposed, too black and white.

Stone, R. P. (Erdington).—(1) "Sir Josiah Mason's Orphanage;" (2) "Newhall College, Sutton Coldfield." Red.; Ilford; pyro-am. No. 2 flat and foggy; both wanting in artistic merit

Brook, T. M. (Manchester).—(1) "Morton Hall;" (2) "Interior, Plas Mawr." Red., Con.; Thomas'; pyro-am. No. 1 too harsh, but No. 2 very fine and soft.

Fortescue, J. N. K. (Bedford).—(1) "Waterfall Church, Derbyshire;" (2) Stoke by Nayland, Suffolk." Con.; Ilford; Alpha; Cowan's gelatino-chloride; hydro. No. 1 an awful colour, and No. 2 too flat, weak, and under-developed.

Butterworth, G. (Darwen).—(1) "Harvest Decorations;" (2) "St. Castor, Coblenz." Con.; Mawson; pyro and ammonia. Fair work, but no artistic merit.

Salmon, P. R. (Cambridge).—(1) "Caius College, Cambridge;" (2) "St. John's College, Cambridge." Con.; Fry; hydro. Far too weak and thin.

Tunstall, E. M. (Cheshire).—(1) "Interior, Dutch Cottage;' (2) "Nave, Brussels Cathedral." Red.; Mawson; hydro. A little too heavy in the shadows.

Ingham, S. (Rochdale).—(1) "Cootleton Hall, Rochdale;" (2) Ditto. Con.; Thomas'; hydro. Too black and white.

Ivy, R. C. (Ormskirk).—(1) "Two Oak Panels;" (2) "A Corner of the Oak Chamber." Con.; England's rapid; chloride; amidol. Far too harsh, and not a pleasing colour.

Forster, W. A. R. (Gateshead).—(1) "St. George's Church, Newcastle;" (2) "Orchard House, Gilsland." Con.; Thomas'; hydro. Far too weak and thin.

Roberts, D. O. (London).—(1) "Interior, Southwold Church;" (2) "Walberswick." Red.; Ilford; hydro. Too weak and thin.

Gottlieb, A. W. (Shrewsbury).—(1) "The Noble Pile;" (2) "Hereford." Con.; Ilford; hydro. Two good slides, but it is running the definition of architecture rather fine to include these. Both want clouds.

Welch, J. (Liverpool).—(1) "R. C. Cathedral, Amsterdam;" (2) "Palace of Justice, Brussels." Red.; Edwards'; hydro. No. 1 too harsh and black and white.

Smith, J., Jun. (Liverpool) sends in two landscapes, which were not admissible.

Anon. (Manchester).—(1) "Interior, Staunton Church, Gloucestershire;" (2) "Nave and Choir, Fountains Abbey, looking East." Red.; Edwards'; pyro ammonia. No. 1 far too black and white and harsh in contrast.

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Messrs. Mawson and Swan have made very extensive additions to their plate factory, and have laid down new engines and electrical machinery. All their plates are tested both in the camera and by the recognised sensitometer test by a gentleman who has had a large experience in this department.

Winchester.—Mr. H. J. Goodwin, of the Railway Hotel, Winchester, has a convenient dark-room, and, being himself an enthusiastic amateur photographer, will be pleased to admit visitors and give them every information. Doubtless some of our readers will be visiting Winchester this Easter.

Maddox Fund.—Sir—I have the pleasure to acknowledge the receipt from Dr. A. G. Mercer, of Syracuse, New York, U.S.A., of the sum of £16 8s. 6d. for the above Fund, which was closed some time ago. I have placed the money in the hands of Dr. Maddox The sum is contributed as follows:—

Mr. Ed. Bausch (Bausch and Lomb)	25 dols.
Syracuse Camera Club	55 "

I am, yours, etc., Andrew Pringle, Hon. Sec.
Cromwell House, Bexley Heath, S.E.

Hints on the Manipulation of the Optical Lantern.*

By P. Horton.

When the title of my paper was selected for me, and duly inserted in our list of fixtures, it struck me then, as it must at least some of you now, that *new* hints on the subject would be difficult to find, and that old hints are common enough in the voluminous literature appertaining to it. Nevertheless, as I was booked for something or other, it occurred to me that a very good plan to adopt would be to jot down hints based on practice during the coming season. I must claim great credit for the scheme, but it got no further than "an idea," consequently, so far as I know, there is only one new hint in this paper, and that one will be considered rank heresy.

Optical Part.—The most important thing about an optical lantern is its optical part, but so long as one is satisfied with short-focus work, and by this I mean a combination that will give a 10 ft. picture at about 16 ft. distance from screen, there is little difficulty likely to be encountered, as most of the better class of cheap lanterns act admirably, but when a greater range of foci is desired troubles begin.

The aspirant to long-distance work soon finds with a longer focus objective, that the light has to be dangerously near his condenser, and even then the result on screen is very unsatisfactory; he is told that the focus of his condenser is too short, and, with much difficulty and expense, obtains one with a longer focus, only to find, on trial, a minor trouble, he loses light through the back lens of his objective being too small.

Despairing of ever reaching perfection, his only consolation is that nine-tenths of his brother lanternists are in the same strait.

To those to whom expense and weight are of no consequence, I should advise a 4½ in. triple condenser, with the condensing lens interchangeable for others of various foci, and an interchangeable rackwork mount to carry 3 in. front lenses, which may be fitted as required.

If rather less than perfection will satisfy, then an English-made double condenser with a meniscus collecting lens and a plano-convex condensing lens can be obtained at a moderate price, which will work well with any objective up to 9 inch focus. There is only one place that I know of where these lenses can be had, and I have only just, after many years' searching, found that. I should advise an interchangeable jacket to carry 2⅝ in. front lenses, a diameter which will probably be sufficient up to 12 inch focus.

Material of Body.—The lantern may, I think, be preferably made with a hard wood base, a Russian iron body, and a camera bellows extending front.

Mahogany-bodied lanterns are now being made so cheaply, and are consequently so common, that this wood is no longer a sign of efficiency, at the same time a mahogany-bodied lantern is very pleasant to work with, but if selected it is imperative that the metal lining is at least a quarter of an inch away from any part and proper ventilation provided.

Illumination.—Many are the methods of illumination used with the lantern, from the humble oil lamp in a shilling apparatus, up to the arc light of the demonstration lantern.

The colza or sperm oil Argand was one of the earliest practical lamps, and I well remember having a pair of lanterns, more than twenty years since, fitted with them. They are seldom to be met with now, although I am inclined to think the Argand would be found useful for enlarging. I used to dissolve 2 oz. of camphor to each pint of sperm oil, then 1s. 6d. per pint, and the two lamps consumed about two-thirds of a pint in one hour and a half.

An improvement upon this was the Fountain Argand, which had a large reservoir above the level of wick.

The Sciopticon apparatus very soon revolutionised lantern lighting by using mineral oil with two flat wicks forming an angle, and was followed by three, four, or even five wick lamps on a similar principle. As the three and four wicks are principally in use now, I may be permitted to recommend the user, first to see that plenty of air can circulate round the oil container, in order that it may be kept comparatively cool; secondly, to use a pure oil with a high flash point; and lastly, to trim his wicks perfectly, and to keep the external part of burner free from oil. I found that the best way to trim a wick was not to adopt the dirty way usually recommended of wiping the charred part off with a rag, but to wait until the wick was cold and hard and to cut it with a sharp knife guided by and level to top edge of burner, taking care to leave about 1-16th of an inch of charred portion remaining below; the outside corners of each may then be slightly snipped. Care must be taken to keep the perforated air strainer below the burner free from dirt; match tops and other matter here are fertile causes of unequal burning.

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* Read before the West London Photographic Society.

The addition of camphor to the paraffin is recommended by some authorities. I am not at all sure that it increases the light, but am quite sure it increases the smoke. It certainly was an advantage when used with sperm oil. The light should not be turned up to the full at first, as the lamp, becoming heated, vapourizes the oil more quickly, and it is better to have to raise the wicks a little than to lower them.

With a four-wick lamp it is possible to get fair results on a five-feet disc.

Improvements on these lamps have been made, notably the Pamphengos, which has met with much approval. Unfortunately, I have not had an opportunity of trying it, but am told that it requires a very pure atmosphere. Now, I am one of those people who do not believe everything they are told, and it does not appear credible to me that human beings can remain comfortably alive where a lamp will not burn. I have seen it fail in a large room with only thirty persons present, so it must seem to an outsider like myself that the fault rested with the lanternist, more especially as I have seen a Pamphengos working beautifully under apparently the same condition as to air and audience in the same room.

Stock's lamp is one of the most recent improvements. I have no experience with this, but believe that our President proposes to give a demonstration of it this evening.

Leaving the oil light (and when one does so he rarely returns to it), we next consider the most generally used forms of limelight.

First, with the oxy-spirit jet, a stream of oxygen is driven through a spirit flame on to a cylinder of lime, which it renders incandescent. It is the poorest form of limelight, and perhaps also the most troublesome to work. This jet is useful, however, where coal-gas cannot be obtained, and, with care in adjusting the wick, can be made to give a light far surpassing oil, and with perfect safety. It is advisable to have the spirit reservoir jointed, in order to retain its perpendicular position when the lantern is tilted.

The next and most popular form is the safety or blow-through jet. In this the oxygen "blows through" ordinary coal gas lighted against the lime, its use is therefore limited to places supplied with gas. Simple to work, absolutely free from danger, cleanly, and giving a light not much inferior to that which the majority of lanternists get from mixed gases, it is essentially the best light for beginners and nervous people. I may here trot out the solitary hint referred to in my opening remarks. It is generally recommended as advisable to thoroughly warm the lime cylinder all over before really lighting up; this seems to embody such sound practical sense that it may surprise you to hear me hint, don't do it. For years I gradually warmed the lime up to nearly a dull redness in commencing any exhibition, which generally resulted in splitting the lime before starting. I tried all grades of heating, with a like result. My present mode of procedure is to raise the lime to its highest point and light a jet of gas against it rather more than its own height. After burning a few minutes, I lower the lime until the top is about three-quarters of an inch above nipple of jet, and, upon the *same* side previously warmed, very slowly turn on the oxygen; after this I do not again turn the lime until the light begins to fail, and slowly, by no means with jerks. We now come to the mixed gas jet, which owes its name to the gas being mixed in a small chamber below the nozzle before burning; this, when properly constructed, probably gives the best limelight known, thorough mixture of the gases and a perfectly smooth bore to jet being essentials.

It is, when used in connection with gas cylinders and regulators, undoubtedly safe, and quite as easy to work as the blow-through.

To get the best results, the lime should be about 3-16ths of an inch from the nipple; there should be very little excess of hydrogen, contrary to the blow-through, which is best with rather a large excess. Too much oxygen in either case lessens the light by cooling the lime.

There is another form of limelight in ordinary use, known as the oxy-ether light. In this, one cylinder only is used, and that of oxygen.

The stream of gas from this is divided, one branch passing through a saturator containing ether, the other branch being connected to the oxygen tap of a mixed jet. The oxygen passing through the saturator, becomes charged with ether, and in this condition is capable of burning like coal gas at the jet. Upon turning on the oxygen, a most brilliant white light is obtained, hardly, if at all, inferior to the oxy-hydrogen light. No system of limelight has received more commendation and abuse than this, on the one side its votaries declaring that it gives more light and is quite as safe as the oxy-hydrogen light; on the other side it is described as most dangerous in even careful hands. My experience of the light is small, but (for this reason some may say) I am inclined to think that with ordinary care it is quite safe. The conditions of safety are thorough saturation of the oxygen with ether and rather a small bore to jet. When we hear of an explosion with the oxy-hydrogen light, we can be quite certain that the two gases have been mixed in one bag (an explosion has not happened up to now when using cylinders), those who know anything are absolutely certain about this. When we hear of an explosion with the oxy-ether light, we can be equally certain that care has not been taken to saturate the oxygen with ether. Flame-proof chambers of powdered pumice are only the safeguards of incompetency, and, being trusted, singularly enough fail when wanted.

In turning out the light, some say turn off the ether first, others turn off the oxygen. As a matter of fact it does not matter which you do so long as you have perfect saturation. Nevertheless, to beginners or nervous operators I should not recommend this form of light.

Very little instruction is necessary in setting up the lantern fitted with oil light. The lamp is generally centered, and capable of very little adjustment. All that remains is to light up and regulate the distance from screen according to size of picture desired.

With a limelight lantern more is required. We first set up the lantern at a suitable distance from screen, and, supposing we adopt the safety jet, connect the left-hand inlet with indiarubber tube to the nearest gas bracket, turning off both taps. We then connect by tube the oxygen cylinder, preferably fitted with regulator, to the right-hand inlet; then approximately centre the jet on the sliding tray, place a lime on the pin, and light up the coal-gas to warm the lime, and also the lantern, pushing the tray and jet as close as convenient to the condenser. After, say, fifteen minutes, withdrawing the jet to about three inches from the back lens, we very slowly turn on the oxygen, with the lime lowered as before suggested, and at a distance of half an inch from the oxygen nipple. After warming in this manner for a short time, we add more oxygen and regulate the gases until the best light is obtained. Inserting a slide in stage, we roughly focus, and then withdraw the slide; it will be probably found that the disc is not evenly illuminated. The light may be centered by placing it nearer to the condenser and adjusting so that the bright part is in the middle. Upon drawing back the tray, even lighting may be secured. If, however, a dark-bluish shade is noticed on one edge, we move the light in an opposite direction —that is, if the shade is at the top we lower the light, and so on. An ill-defined edge of a reddish colour indicates that the light is too far away. We finally adjust for focus, and are ready to start. This seems complicated in description, but it is very simple to perform, as I will show later.

The best way of judging the condition of light is from its reflection in the condenser viewed from back of lantern. A dark centre shows that there is too much oxygen or that the lime is too close to nipple. As said before, there must be rather a large excess of coal gas, but not enough to endanger safety of lantern; too much is apt to redden the light.

The lime must be gently turned occasionally, to prevent possible cracking of condenser and also to secure the best light.

As to the limes most suitable, soft ones give the best light with the blow-through jet, but require more attention than hard limes. Personally, I much prefer those known as "Excelsior." They are, however, expensive and treacherous, giving by far the whitest light of any I have tried, but taken together the advantages about counterbalance the disadvantages; they can rarely be used more than once. The Nottingham hard limes are very durable, but are generally badly made.

I have said that it is preferable to use a governor on the cylinder, although using gas direct from the cylinder is quite possible and often done. Some sort of regulator, I prefer Beard's, is desirable for a beginner, and is a great comfort to the advanced operator.

Finally, a word of warning. Although gas compression companies are now very particular, and use much care in keeping the oxygen and coal gas pumping arrangements separate, I strongly advise, on the principle of "not believing everything you are told," every user of the gases to roughly test the gas before using. My plan with my own cylinder is to take a few samples in a test tube by water displacement, and to try them with a lighted match; an explosion would result in the case of a mixture. With hired cylinders this is sometimes inconvenient; then I fill the regulator, turn off the cylinder valve, light at the jet, and, after repeating this once or twice, if the regulator is still sound, am satisfied. If using an oxygen cylinder without a regulator, the sense of smell must be sufficient, and the abominable smell of compressed coal gas is such that it would nearly be *felt* if present. It is fair to say that in no case have I found an explosive mixture.

I now propose, with your permission, to show the various lights enumerated, and can assure you that there will be absolutely no danger whatever. I have much too great a respect for my own skin to run any risk. Mr. Hodges has very happily proposed a comparison of lights on the screen, and, with his assistance, I have no doubt this will prove interesting.

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G. Wright and Co., Manchester Road, Hopwood, Manchester. This firm sends us a neatly-printed pamphlet treating of the uses of their special preparations, Thiotone and Noxinol.

On some of the Chemicals used in Photography.*

By Ch. W. Brumwell.

The subject which I have the pleasure of bringing before you to-night is one of so comprehensive a nature that to treat it fully would occupy considerably more time than I have at my disposal. Photography as a science and art is closely allied to chemistry and optics. It is to the former we wish to turn our attention this evening.

It is possible, and indeed probable, that some of my remarks and the experiments I shall endeavour to show may be familiar to some of you; I trust that such will bear with me, in consideration of those members whose knowledge of chemistry, is more limited. I propose to take some of the chemicals commonly used in photography, to tell you what I can concerning their preparation, detection of impurities, and such other information likely to be of service to photographers, including methods of saving waste residues of gold and silver.

(1) Acetic Acid is obtained by the destructive distillation of wood (the best kinds being hard woods, such as the oak, beech, and elm); hence the term pyroligneous acid, from the Greek *pyro*, fire, and Latin *lignum*, wood, which is the name given to the crude acid. The products of the wood are passed into water and carbonate of sodium is added, the whole is evaporated to dryness, and the residue heated gently to drive off tarry matters. The acetate of sodium thus formed is redissolved and sulphuric acid added, which decomposes it, forming sulphate of soda and free acetic acid, which is distilled off and dissolved in water, forming the acetic acid of commerce.

There are two strengths of this acid commonly met with—the ordinary, containing about 33 per cent., and the glacial, containing 99 per cent.

Its use in photography is found in the developer for the wet plates, and acetate of sodium is used for some toning baths for albumenised and gelatine papers.

(2) Citric Acid exists in the juice of the gooseberry, currant, cherry, strawberry, raspberry, and many other fruits, as well as in other parts of plants. The pulp of the fruit of tamarinds contains sometimes as much as 12 per cent., in addition to malic and tartaric acids and the acid tartrate of potassium commonly known as cream of tartar. It is, however, from the lemon or lime that the acid of commerce is usually obtained. For this purpose concentrated lime juice is exported from Sicily, concentrated bergamot juice from the Calabrian coast of South Italy, and concentrated lime juice from the West Indies. The method of preparation is as follows:—The hot juice is saturated with chalk, forming, of course, citrate of calcium; this is collected on a filter, washed with hot water, then decomposed with sulphuric acid, forming insoluble (or nearly so) sulphate of calcium, and citric acid in solution. This is evaporated, and the citric acid allowed to crystallise out.

(3) Nitric Acid is obtained from nitrate of potassium (commonly known as saltpetre), which is found in and about the villages of India, produced by the oxidation of animal matter, and of the nitrogenous constituents of animal and vegetable matters in the soil. The natives simply scrape the surface of waste grounds, mud heaps, banks, and other spots where a slight incrustation indicates the presence of appreciable quantities of nitre, mixing the scrapings with wood ashes (which contain carbonate of potassium) to decompose the nitrate of calcium always present, digest the mixture in water, and evaporate the liquor, which yields nitrate of potassium. Nitric acid is obtained from this by treating with sulphuric acid, distilling off the nitric acid, which we will at once proceed to set in action. Nitric acid is used in photography for preserving pyro in developers.

(4) Hydrochloric Acid is obtained from common salt, by treating it with sulphuric acid and distilling. It is used in photography for clearing bromide prints and lantern slides, and for fixing platinotypes. Common yellow hydrochloric acid is a bye-product in the manufacture of carbonate of sodium from common salt, a process in which the chloride of sodium is first converted into sulphate, hydrochloric acid being liberated. This impure acid is liable to contain iron, arsenium, fixed salts, sulphuric acid, etc. We will test for these.

(5) Pyrogallic Acid.—This substance sublimes in light, feathery crystals when gallic acid is heated, gallic acid being obtained from galls. This acid—or, more correctly speaking, this alcohol, for pyro is not an acid but an alcohol—in combination with an alkali is a powerful absorbent of oxygen, and this is the reason our pyro developers will not keep after the alkali has been added, and furthermore we are careful to put with our pyro some chemical which is greedy of oxygen; sometimes it is sulphite of sodium, at other times sulphurous acid. This property of pyrogallic acid in an alkaline solution will occur to you as being most useful in estimating the purity of the atmosphere, or the oxygen which we use for our lantern. We cannot do better than take this opportunity of testing the oxygen which we have here.

I need not tell you for what purpose this (so-called) acid is used in photography. Its appearance is familiar to you all, and we need not trouble ourselves about any impurities so long as it is white.

(6) Sulphuric Acid.—This acid is prepared from sulphur, which is found in the ground sometimes nearly pure and at other times in combination with minerals, chief of which is iron.

The sulphur is burned, forming sulphurous anhydride; and this is oxidised by means of nitric oxide, and hydrated by means of steam.

Its use in photography is as a clearing bath for bromide prints, etc. It is very corrosive, and extremely dangerous to handle.

Its impure form is called oil of vitriol, because it was formerly obtained by heating green vitriol, which is sulphate of iron.

In cases of poisoning by this acid give a solution of carbonate of soda, or common washing soda or magnesia.

(7) Sulphurous Acid is produced when making sulphuric acid, as stated previously, namely, by burning sulphur and passing the product into water. This acid is used as a preservative for some "pyro" developers, it being a powerful absorbent of oxygen, forming with it sulphuric acid. It has a characteristic odour, which is generally sufficient for its recognition. We will prepare this gas and test it.

(8) Alum is a useful substance prepared from "aluminous schist," a substance found in the ground, composed of silicate of aluminium and bisulphide of iron. On exposure to air, chemical change produces sulphate of aluminium, sulphate of iron, and silica. The sulphates of alum and iron are dissolved out of the mass by water and sulphate or chloride either of ammonium or potassium added. On concentrating the liquid, alum crystallises out, while the more soluble salt remains in the mother liquor. There are really several alums, iron or chromium taking the place of aluminium, and potassium or sodium that of ammonium, all crystallising in octahedra (that is like two pyramids base to base) and always containing twenty-four molecules of water.

Potash and ammonia alums are used for hardening gelatine films, and chrome alum is used for clearing gelatine negatives.

(9) Ammonia.—The source of nearly all ammoniacal salts met with in commerce is ammonia gas, obtained in distilling in the manufacture of ordinary illuminating gas and of coke. It is doubtless obtained from the nitrogen of the plants from which coal has been produced. The coal is heated in large iron retorts, and the product consisting of the illuminating gases, ammonia, carbolic acid, bisulphide of carbon, etc., is passed into water; the gas after further purification is ready for use for illuminating or heating purposes, and hydrochloric acid is added to the liquor, forming the sal-ammoniac of commerce; this is treated with lime, and the ammonia passed into water under pressure, forming our ·880 ammonia used in photography as an ingredient in some pyro developers. This preparation is very simple, but requires care; instead of lime we will use solution of potash, as it will expedite matters somewhat.

(10) Ammonium Sulphocyanide.—This is prepared by boiling sulphur with a solution of cyanide of ammonium. Strange to say, sulphocyanide of ammonium is not a poison, though there is a prevailing opinion that it is. I failed to convince a photographic friend of mine that such was the case, until I swallowed some in his presence, and had no symptoms of poisoning. He was still more astonished when I told him that I was prepared to prove to him that he had in his mouth at that moment some sulphocyanide of potash. If one of the gentlemen here will kindly give me a little of his saliva in this test tube, I will at once prove to you the presence of the sulphocyanide. The test for sulphocyanide is that they will give a red coloration with a solution of ferric chloride not discharged by hydrochloric acid (acetates give the same, but the colour is discharged by hydrochloric acid).

Meconates also give this red colour not discharged by hydrochloric acid; to distinguish these from sulphocyanides, the colour of the latter is discharged by a solution of perchloride of mercury, that of the former is not.

The effect of heat on this substance is to cause it to evaporate, even if left in a paper it will evaporate after a time, hence it is advisable to keep it in glass-stoppered bottles.

(11) Caustic Potash or hydrate of potassium is prepared by heating together a solution of carbonate of potash with lime. It is, as you are aware, a powerful caustic. The best antidote in case of poisoning is some weak acid; it is used in most hydroquinone developers.

(12) Glycerine.—This substance is prepared by passing superheated steam through fats; it is also a bye-product in the manufacture of soap and lead plaster. It is used as a restrainer in the development of platinotype prints.

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* Read before the Kensington and Bayswater Photographic Society.

(13) Hydroquinone or Quinol is prepared by oxidising aniline sulphate with bichromate of potassium. It differs from pyro only in one molecule of hydroxyl, pyro being tri-hydroxybenzene and hydroquinone di-hydroxybenzene, our faithful friend carbolic acid being the mon-hydroxybenzene. This substance, like pyro, is subject to the influence of oxygen, and if we pass some of that gas through a solution of it we shall find a considerable discoloration.

(14) Iron Sulphate.—This may be prepared by dissolving old iron in sulphuric acid, and subsequently purifying by recrystallisation. Its appearance should be a light transparent green colour. Its solution is liable to decompose, forming an oxy-sulphate, which is unsuitable for use as a developer.

(15) Bichloride of Mercury is prepared by heating together sulphate of mercury and sodium chloride, which is common salt; the bichloride sublimes, and sulphate of sodium remains. Mercury preparations are obtained from cinnabar, which is a sulphide found in Spain, Peru, and California. The bichloride is used in photography as an ingredient in intensifying solutions. This chemical is intensely poisonous. The best antidote is raw eggs, which form an insoluble albuminate of mercury; this must be removed from the stomach by an emetic, such as a wineglass of ipecacuanha wine. A useful test for all soluble mercury compounds is to boil two or three copper turnings with an acidified solution, the turnings taken out, gently dried, and then heated in a test-tube, whereupon the mercury sublimes in minute globules. Another test is to add a solution of iodide of potassium, which gives an orange-red precipitate, soluble in excess of either bichloride of mercury or iodide of potassium solutions.

(16) Potassium Bromide is prepared by heating together bromine and potassium hydrate in solution. Its use in photography is as a restrainer in developing and in the preparation of sensitive silver emulsions for plates and papers.

(17) Potassium Cyanide is prepared commercially by heating together dry carbonate of potassium and ferrocyanide of potassium. This gives us the impure variety (containing only about 33 per cent. of pure cyanide). A method to obtain a purer quality is to heat the ferrocyanide alone. To prepare it absolutely pure, hydrocyanic acid gas is passed into an alcoholic solution of caustic potash.

This preparation is extremely poisonous. Scheele, the man who discovered hydrocyanic acid, was poisoned by its fumes. The best antidote is the inhalation of ammonia. Its use in photography is as a fixing agent in the wet-plate process and in some intensifying solutions.

The two best tests for cyanides are, first, their peculiar almond-like odour, and second, they give a white precipitate with nitrate of silver, soluble in excess of the cyanide but insoluble in either ammonia or nitric acid. Chlorides give a white precipitate with nitrate of silver, but the precipitate is soluble in ammonia.

(18) Potassium Ferrocyanide is prepared by heating together scrap iron, any waste nitrogenous matter such as old leather, horns, hoofs, etc., with carbonate of potash. The ferrocyanide is dissolved in water and crystallises out in large yellow crystals. This preparation is useful in carbonate developers, preventing fog and giving a brilliant negative. It is not a poison. Heat upon a solution of this salt decomposes it, hence hot water must not be used in effecting its solution.

(19) Potassium Oxalate is prepared by the action of oxalic acid on potassium carbonate. There is an acid oxalate in common use for taking out ink-stains, the acid forming oxalate of iron, and the oxalate of potash dissolving it away. The fact that oxalate of iron is soluble only in a solution of potassium oxalate will explain why it is that the makers of bromide papers are so careful to point out, in their directions for preparing developing solutions, that the iron solution must be poured into the oxalate, and not *vice versa*.

The oxalates are poisonous, therefore I will show you the easiest test for them. They give a precipitate with chloride of calcium insoluble in acetic acid.

(20) Sodium Hyposulphite is prepared by heating a solution of the sulphite of sodium with sulphur.

It is almost unnecessary to mention its photographic use. Its fixing power, depending upon its capability of dissolving silver compounds, is familiar to you all.

The addition of an acid to this salt precipitates sulphur and liberates sulphurous acid gas, as you may perceive by the smell. On this account it is advisable not to add an acid to your fixing bath or you may have a deposit of fine sulphur on your film which may be difficult to remove. After fixation and washing of our plates or paper it is useful to be able to ascertain by a simple chemical test whether we have entirely got rid of our hypo; this we may do by allowing a few drops of water to drain from the print or plate to drop into a very weak solution of permanganate of potassium previously made alkaline by the addition of a little carbonate of potassium. Any trace of hypo will be indicated by the permanganate of potassium losing its pink colour and becoming green, due to the formation of manganate of potassium.

(21) Silver Nitrate.—This compound is prepared by the action of nitric acid on silver. It is used in photography for the preparation of emulsions for plates and papers.

A useful method of saving the silver from hypo solutions is to precipitate the silver as sulphide by means of sulphohydrate of ammonium and afterwards collecting the precipitate and dissolving it in nitric acid. This solution after filtering and neutralising if necessary with ammonia may be used to make a silver intensifier, or the nitrate may be crystallised out without adding the ammonia. This is some nitrate of silver which I have prepared in this way, and this is some sulphide of silver prepared by the same process.

(22) Gold and Platinum may be precipitated from their solutions by the addition of ferrous sulphate and the residue dissolved in nitro-hydrochloric acid.

Club Types.

By the Man About Town.

The study of human nature, in its varying phases and under varying conditions, is ever an interesting subject; its limits are boundless, and its provision for research will not be exhausted until the end of the world. No better opportunity for considering individual characteristics can be found than personal contact with a body of people banded together for some common object or purpose. Each separate human unit possesses peculiarities, some strongly pronounced, others barely distinguishable, yet still existing, closer acquaintance and time only being required to bring these idiosyncracies into observation. In a photographic club or society, for instance, an almost kaleidoscopic collection of individual peculiarities is to be met with. It may, therefore, not be inappropriate on the present occasion to briefly recall to the memory of the reader some of the many types he invariably comes into contact with at the various functions connected with his own particular club or society.

The first type that we shall consider is the *Pot Hunter*. This is a very important specimen, yet, notwithstanding the prohibitive nature of his composition, is not uncommon. He is, of course, one of the club's best workers, and as a rule he has an excellent opinion of his own skill and powers, and is admired and envied by his fellow-clubmen. Their love for him, however, increases tenfold when he does not pit his talent against theirs, but confines his penchant for medals to the open classes only. He is generally a very good-natured sort of fellow, being always ready to give advice to novices. Should be fail to score at any exhibition he always knows the reason why, and can furnish an unanswerable excuse. He has a mysterious instinct for discovering future exhibitions. He is well versed in everything connected therewith, scatters his work broadcast over the land, often exhibiting at the same time in two or three towns situated far away from each other. At the club he is *the* authority on all matters relating to the making of a picture, and his assistance is invoked to elucidate any technical difficulty that may arise.

The *Investigator* delights to dabble with the latest invention, no matter to what branch of the art it may appertain. No sooner does the announcement appear that a new developer or a new brand of plates is on the market than off he rushes to the nearest dealer and orders samples to experiment with. The result is duly reported to the members of the society, many of whom never dream of venturing to adopt anything new until they have received the *Investigator's* opinion, in which they have as much confidence as a solicitor has in the opinion of counsel. He has always got the latest thing in shutters, and will expatiate for hours on the last improvements in cameras and lenses. His heart beats quicker, his eye kindles, he is filled with joy when the first intelligence of a new invention is brought to him, and in a very short space of time he knows and can tell you all about it.

The *Faddist* is a peculiar individual with peculiar fancies. He *must* have this sort of camera, it is imperatively necessary that he should have that kind of lens and So-and-so's plates. He affects to despise the work of every maker, except the favoured one that he patronises. Wherever he goes he carries with him an exposure book, upon which he places as much reliance as a hermit in his Bible. He religiously follows in the paths of his forefathers, and never diverges a hair's breadth; does not like new-fangled things, and will not at any price try a new developer. "No! my boy," says he, "they may try till they become bald-headed, but they will never beat pyro!" In his dark-room he is most methodical. His developing dish must always be placed here, his hypo there; his various bottles have each a distinct place, and they must not be disarranged, under penalty of death. Even his focussing cloth must be folded in a certain manner, and his lenses when out of use must always be replaced in their swaddling clothes of chamois leather. He has nearly a hundred different accessories over and above an ordinary outfit, every one of which he solemnly assures you on enquiry is requisite and necessary for the successful carrying out of his photo.

The *Everlasting Interrogator* is sometimes apt to become a nuisance. He is of such an enquiring turn of mind, does really so much want to know the minutiæ of this system and every possible detail connected with that system, that he often bores a lecturer who is addressing the meeting and sometimes totally crushes him beneath the pyramid of queries he hurls at him. His questions are generally more or less applicable to the subject under discussion; but so great is his love for interrogating that he sometimes forgets himself and asks an imbecile question. It is then that the bored lecturer's opportunity for revenge arrives, and he is sarcastic at his tormentor's expense.

The *Base Imitator* (poor fellow!) lacks mental capacity; he possesses nothing original (except himself), could not evolve an idea of his own to save his life, only managing to exist and fill a place in the ranks of mankind by closely following the example—good or bad—of others. If he is out on a tour with a friend, he only takes those very views that his friend takes, from the self-same spot and under precisely similar conditions. He will not expose one plate more or one plate less than his companion; and whatever his ideal or "pattern" for the time being does, that doth he also with soulless exactness.

No matter how well constituted a society may be, a *General Grumbler* is sure to exist to render the lives of the committee a burden unto them. With whatever is done for the benefit and welfare of the club he always has some fault to find. If only his advice had been taken, this and that would not have happened. He dearly loves to have a finger in every pie, and he usually manages to gratify his wishes in this direction. Whenever he unearths a new grievance he will recount it into the ear of anyone he can lay hold of; he is never happy unless he is unburdening himself and confiding in someone, who, by the way, is only too glad to escape as soon as possible.

Sometimes a club is unfortunate enough to possess a *Punster*, who evidently is wasting valuable time, and should be utilising his talent on the staff of *Ally Sloper* or a similar periodical. The "jokes" (!) that the long-suffering members have to endure, the feeble harpings on words they have to listen to, oftentimes make them thirst for the blood of the miscreant. It is a wonder he is allowed to live.

The *Ordinary Individual*, in whom there are no strongly marked characteristics, predominates of course in every society, and it is to these that it has to look for its backbone and its support. There are various other human curiosities unmentioned in this article existing at the present time in different societies, but the reader will be able to find these himself without much trouble, and when he has done so, and has considered their peculiarities and eccentricities, he will certainly be greatly amused if not edified.

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The Sandell Plate.

THE following is a precis of Mr. Herbert Fry's lecture on the above at the Hackney Society. He first wished to remove a popular idea that this plate is a slow one, and proved the rapidity of it by showing several prints of objects in motion without any blurring. Mr. Fry claimed the following points for it: (1) The best in the market for instantaneous work. (2) The only one for interiors. (3) Complete practical cure of halation. (4) A better and rounder image, from the peculiar sensitiveness of the emulsions. (5) The latitude in exposure; the length of time, within reason, is unimportant. (6) For the last reason, it is the plate for beginners. The Sandell plate has a rapid film over a slow film. The action of the rapid film secures a good image in the event of a short exposure. If a prolonged exposure be given so that the rapid one is over-exposed, the image on the rapid one will be thin and the excess of light will penetrate the slower one, which will secure a good result. If a still longer exposure be made, the little light that penetrates the film is reflected by the glass back again into the slow film, where it practically stops altogether. The range of latitude between a rapid exposure and a long one with perfect freedom from halation is anywhere between 1 to 40 or 50. The Sandell plate acts selectively, the details are produced by the fast film and the high lights in the slow. If a quick shutter exposure be made, the development can be steadily and persistently till it enters the second film, provided you avoid too much alkali. The formulæ for development include cyclol, eikonogen, hydrokinone, or eikonogen and hydrokinone mixed—preferably the following:—

Hydrokinone	30	gr.
Eikonogen	100	,,
Rodinal	9	dram.
Sulphite of soda	2½	oz.
Carbonate of potash	2½	,,
Water, make up to	1	pint.

This is a stock concentrated solution. Add in summer 1 part to 7 of water; in winter add 1 to 3 of water, for immediate use. In cases of over-exposure (say fifty times normal), dilute this again with ten times its bulk of water and add 2 or 3 grains of bromide of potassium to the ounce. If this be too slow, add only a very little of the concentrated to encourage it. It is always far better to use weak solutions than to trust to after-reduction. The fixing bath is stronger than for other plates, because the films are thicker and richer in silver. Never strip a film, for the top film must have something in it that adds to its usefulness. For instance, it may be solarised, and if so, the shadows must be rich in detail. A question was asked, if any special precautions were to be taken, such as against the light, etc.? Reply was given—No. A print was handed round. The subject showed the bright sun in one corner, boy on bicycle, rails against the sky in the background; there was no halation; spokes of the wheel were sharp, and the rails without a blur. A series of prints, 15 by 12, were passed round, in none of which did the slightest halation appear, although some of them had five hours exposure with *f*/45; and as a contrast, one taken a few days ago, a yacht sailing, with cordage against the sky all perfectly sharp, 1-60th sec., *f*/11.

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Exhibitions.

SOCIETY.	ENTRIES CLOSE.	OPENS.	CLOSES.	ADDRESS OF SECRETARY.
Manchester Amateur Photographic Society	—	Mar. 21	Mar. 25	
Croydon Camera Club ...	—	April 5	April 8	G. R. White, 55, Albert Road, Croydon.
National Photographic Exhibition, Crystal Palace ...	—	April 10	April 29	
Bolton Photographic Society	—	April 12	April 15	
Philadelphia (U.S.A.) Phot. Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.
National Sportsman's Exhibition (Photo. Apparatus Section).	—	April 24	May 6	Royal Aquarium, Westminster.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B.

LEICESTER PHOTOGRAPHIC SOCIETY.

THE second public exhibition was opened on 22nd and 23rd inst. This society, which was started in 1885, now numbers some sixty members, and, encouraged by the success attending the first exhibition of their work, the council decided to extend the venture this year by keeping it open for two days, and providing a thoroughly attractive and interesting display of examples of the art the society was formed to promote, and a loan collection of prints was obtained from outside sources. The President of the Society, Mr. J. Porritt, showed a number of enlargements, and prints on silver, platinotype, and other papers, of charming views in Wales and Derbyshire; and three effective enlargements were exhibited by Mr. F. G. Pierpoint, ex-President, and that of Haddon Hall was particularly striking. Mr. G. Bankart showed a collection of carbon and platinotype prints of exceptional finish and tone. Some views in Warwickshire were most praiseworthy. A number of fine bromide enlargements were sent in by Mr. T. Scotton, of Derby. A Midland express train taken while travelling at full speed showed a remarkable amount of detail, and his views of Lincoln and Peterborough Cathedrals made perfect pictures. Mr. A. W. Wilson, Vice-President of the Society, displayed a collection of views in Cardiganshire and Bradgate Park. The chloride prints by Mr. H. Pickering, the Hon. Secretary, were also deserving of notice. They were of well-selected views in North Wales and Leicester, and the former in particular were very pleasing. Other exhibits by members were sent by Messrs. S. P. Baker, F. Brown, H. L. Cowdell, R. Frost, F. Jolliffe, Squire, S. S. Partridge, J. K. Seddon, J. Toone, G. E. Woodcock, and Messrs. Seville and Co. The loan collection contained some grand examples. Mr. S. F. Clarke, of Louth, sent several beautiful studies, two of which, "Love's Young Dream" and an "Italian Girl and Monkey," were especially good. Mrs. S. F. Clarke also sent some studies of well-posed figures. Mr. I. Slater, of Llandudno, exhibited several excellent views in Wales, and the enlargements by Mr. J. Pike, of Leicester, also called for notice. Collections were also loaned by Messrs. B. Alfieri, A. R. Dresser, M. J. Harding, G. W. Wilson, W

D. Welford, and the London Autotype Company, and R. Keene, of Derby. The exhibition was opened by the Mayor in the presence of a large gathering. Slides were shown in a lantern lent by Archer and Son, of Liverpool, and instrumental and vocal music was also provided.

THE "OPTIMUS" EXHIBITION.

We have had an opportunity of examining a magnificent series of enlargements of many of the prints sent in to the Optimus 100 Guinea Competition, and we understand that they will shortly be on public exhibition. Many of the pictures are 24 by 18 enlargements from quarter-plate negatives, snapshots in most cases, taken with the "Optimus" lenses, and in being thus enlarged without any loss of definition and in such a manner as direct prints could not be obtained, speaks volumes for the quality of the lenses, if such was needed.

THE "SANDELL" EXHIBITION.

An exhibition of prints from negatives on the "Sandell" plates will be held from April 17th to 22nd, at 24, Regent Street, S.W.; tickets (for prices see advertisement) may be obtained from all dealers and from the Editor AMATEUR PHOTOGRAPHER. We shall take an early opportunity of reviewing these pictures in detail, as report says that they are exceptionally fine, and in most cases striking testimonials as to the capabilities of the plates.

Societies' Notes.

NORWICH Y.M.C.A. CAMERA CLUB.—On March 15th a successful meeting was held to inaugurate this club by the adoption of rules and election of officers. A large number of local amateurs attended, and the interest shown in the proceedings told well for a successful and useful career for the club. The subscription was fixed at 2s 6d. for members of the Y.M.C.A., and 5s. for non-members. Every practical convenience will be provided, including dark-room and dry-work room, and young photographers joining the club will be enabled to obtain the advice and encouragement of some of the best photographers in the district. All communications should be addressed to secretary, Y.M.C.A., Camera Club, Norwich.

WE are informed that Mr. W. J. Belton has been appointed by the Paget Prize Plate Company to demonstrate their printing-out opals and lantern slides before the photographic societies. Secretaries of societies desiring to fix a date for the demonstration should apply to the Paget Prize Plate Company, Watford.

THE 3rd of April is the latest date for sending in entry forms for the Forfar exhibition, and intending exhibitors should apply at once to Mr. W. J. Anckorn, West Port, Arbroath.

THE following are the titles of subjects illustrated by the slides to be shown during the four evenings of the Croydon Exhibition:—"A Trip on the Continent," "In and about Croydon," "Holidays by the Sea," "The Experiences of an Amateur," "Under the Broad Skies," "Rural Surrey," "Scenes as they were Seen," and "Rambles with a Camera." Two displays, selected from the above, will be given each evening. In addition, choral selections and part songs, violin, concertina, and whistling solos and banjo quartettes will be performed, and popular demonstrations besides; and all for sixpence, providing tickets are bought in advance.

THERE are vacancies for two members (lady or gentleman) in the Postal Photographic Exchange Club, the secretary of which (Mr. R. W. Copeman, of Kuklos Cottage, Henstridge) will be pleased to furnish full particulars to any amateur wishing to join. As this club not only provides for circulating members' work but also for exchanges and criticisms, it should be very useful to any one looking about for such.

Societies' Meetings.

Accrington.—The South African slides were exhibited before a large audience. Additional interest was taken in this set from the fact that a large proportion of the slides were the work of Mr. J. Wignall, a former President of the Cape Town Photographic Society, and who is a native of Accrington. The ordinary meeting was held on the 22nd inst., and the following subjects, "Exposures, Stops, and Development," which were introduced by Dr. Clayton, proved very interesting. Several plates were developed with Dr. Andresen's "Diamidophenol," and gave highly satisfactory results.

Aston.—On 23rd inst. the President, Mr. John Edmonds, gave a demonstration on "How to Make a Microphotograph." In 1854 he experimented upon some collodion plates, which he developed with pyro, but he found he could not get satisfactory results with collodion, so he turned his attention to some other branch. Upon the advent of the dry plate, he recommenced, and with such success that he had since turned them out by hundreds. He said he paid but little attention to theories, of which he had heard many, but advised his friends to do as he had done, viz., "work out their own ideas," and rely only upon the maxims they had proved for themselves. The practical portion proved Mr. Edmonds to be a master in the branch of photographic art he was describing. With primitive apparatus, from a microscopic slide of one of the Hoppers known as "Cuckoo Hopper" (Tettigonia), he produced a negative, sharp, dense, and full of detail, by projecting the microscopic image upon a dry plate as in a lantern projection. Mr. Rallings then exhibited some prints of local views, and Mr. Pilditch, Hon. Secretary, showed half a dozen lantern slides, giving six distinct tones, which had been produced upon the Alpha plates by toning. Conversation closed the meeting.

Birmingham.—Ordinary meeting held on 21st inst., Mr. W. Jones in the chair. Mr. Bynoe, representing Messrs. R. and J. Beck, gave a lecture on the uses and capabilities of the Frena hand-camera. Its capabilities were ably demonstrated by the series of slides shown of views taken with this camera, as well as by prints passed round.

City and Guilds of London Institute.—A meeting was held on 22nd inst., at which a paper was read by Mr. Staynes on "Pinhole Photography," illustrated by examples. A special prize is being offered by Mr. Staynes for this class of work at the forthcoming competition of the Society.

Fairfield.—The second popular public lecture was held on 15th inst. The lecture, "The Hill-Top Cities of Etruria," was delivered by Mr. Geo. E. Thompson, and illustrated by lantern slides. This club also held a soiree on 20th inst. The entertainment combined a limelight lecture and concert. Mr. Chas. A. Timmins gave his lecture, "Thirteen Days' Scamper through the Norwegian Fjords" on board the ss. *City of Richmond*. The slides were extremely fine. The musical and instrumental portion was also much appreciated.

Fillebrook.—On 20th inst., Mr. H. T. Malby in the chair, Mr. H. W. Bennett opened a discussion on "Rough Paper." In the course of his remarks he said that the present craze was for the use of the roughest of rough paper, arising from the success achieved with it by a few prominent workers and the undue preference given to it by judges at recent exhibitions. The great majority of those who used it did so with very little discrimination. One of the medalled photographs at the Society's recent exhibition, of an architectural subject, was printed on paper so rough that the truth of straight lines was destroyed, the undulations of the paper being larger than the images of the blocks of stone, and out of all proportion to the scale of the subject. It was frequently said that such a surface gave an "artistic" and "painter-like" result; but in his opinion the pictorial qualities of a photograph were independent of any special fad; and the indiscriminate use of such methods was either studied eccentricity or utter want of judgment. It was not right to endeavour to make a photograph as unlike a photograph as possible. Rough paper should only be used for very large work, and then only in special cases; the texture should depend on the character as well as the size of the picture, and should never be obtrusive at the ordinary distance of viewing. In the discussion which followed, Mr. Spurgeon contended that a photograph printed on coarse-grained paper was deprived of its chief characteristic, that of rendering fine details, and that a sharp picture on a smooth surface, seen from the proper distance, could possess all the softness and breadth desirable, with the additional beauties revealed by a close inspection. Considerable discussion followed.

Gosport.—An informal meeting of the members of this association was held. Mr. Williams, Vice-President, occupied the chair, and it was unanimously decided to have an outing to Rogate on Easter Monday. The Southsea Amateur Photographic Society are going to the same place, and quite a large party is expected. Two or three hand-cameras were passed round for inspection, and some stereoscopic slides by the Chairman elicited much admiration.

Glasgow.—A popular meeting was held on 23rd inst., Mr. William Lang, jun., F.C.S. (President), in the chair. Mr. J. Buchanan gave a very interesting and graphic account of his personal experiences of Chili and Chilian civil war. Gold mining and prospecting in the Andes were fully described, as was also the nitrate industry. The lecture was illustrated with a large series of slides from photographs taken by the lecturer, some showing the bombardment of the towns by the fleet, others gold mining and nitrate operations on the Andes, at a height of 10,000 feet above sea level.

Hackney.—On 21st inst., Mr. R. Beckett in the chair. Two nominations were read. Members' work was shown from Messrs. Hudson, Roofe, and Sodeau. Question: "Can any member give his experience of the Zoka hand-camera?" Reply: "Good, as a low-priced

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10 x 8 ,, ...	7/3	9/6	10/-	2/9	2/6	10/-
12 x 10 ,, ...	10/6	13/-	16/-	...	...	16/-
12½ x 10½ ,, ...	...	...	...	4/-	3/6	...
15 x 12 ,, ...	18/-	23/-	24/-	...	...	24/-
15½ x 12½ ,, ...	...	...	...	6/6	5/6	...
18 x 15 per ½ dozen ...	...	...	...	5/3	...	...
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camera." Question: "What lens is best for landscape work?" Reply: "Rapid rectilinear, or single landscape if it will work at $f/11$." Mr. R. Beckett recommended having a lens that will cover a size larger than the plate, so that it will cover when the lens is raised. Mr. Herbert S. Fry then gave his "Demonstration of the Sandell Plate." See page 221.

Liverpool (A. P. A.).—On 23rd inst. Mr. Bynoe exhibited Messrs. Beck's Frena hand-camera. The lecture was illustrated with lantern slide diagrams descriptive of the various parts of the instrument and a number of slides showing some of the work done with the camera were projected on the screen.

Liverpool (Camera Club) —The fortnightly meeting was held on 22nd inst., the President, Mr. J. Hawkins, in the chair. The prize slides of the National Lantern Slide Competition were passed through the lantern, and very much enjoyed by the members and friends. Mr. W. A Brown officiated as lanternist. At the close of the proceedings the President, in the name of the club, presented Mr. W. Tansley, late Secretary, with one of Miller's hand-cameras, as a mark of their esteem.

Leeds (Y. M. C. A.) —A meeting was held on 24th inst., the President in the chair. Mr. Thompson gave a very interesting demonstration of the "Cresco-Fylma Enlarging Process," and succeeded in enlarging a quarter-plate film to a half-plate. Some excellent results obtained by this process were afterwards placed before the club. The first field-day of the session took place on Saturday afternoon, 25th inst., when a visit was paid to Kirkstall Abbey.

Llandudno.—A meeting was held on 24th inst., when, after an address from Mr. Whiston, one of the Vice-Presidents, congratulating the members on the possession of their new premises, the Hon. Secretary gave a demonstration on intensification of negatives, the formula being potass. bromide 3 drams, mercuric perchloride 3 drams, water 1 pint, for one solution; and nitrate silver 3 drams, cyanide potass 3 drams, water 1 pint, for second solution. The amount of density obtainable on the thinnest ghost of an image rather astonished some of the members. Visitors to Llandudno and North Wales will have access to the club-rooms and the developing-rooms on payment of a small fee. Members will give visitors all information they require. The club attendant supplies developers ready mixed. The Secretary will reply to any amateur intending to visit this beautiful locality if a stamped envelope is enclosed. Letters to be addressed to the Hon. Secretary, Camera Club, Club House, Bodhyfrid Road, Llandudno.

Nottingham.—A meeting was held under the presidency of Mr. W. J. Abel, on 17th inst. A practical demonstration of the new developer, "Amidol," was given by Mr. L. E. Morgan. The lecturer showed, in actual practice, the method of employing it in the development of negatives, bromide prints, and lantern slides.

N. Staffordshire.—At the annual meeting, held on 23rd inst., Mr. A. Meigh was elected Chairman. The retiring Chairman presented his report, which stated that in each excursion of the past season at least one camera was present. An admirable exhibit of over 100 prints contributed by Messrs. Adams, Hils, Meigh, and Whytehead testified to this fact. Several geological photographs for communication to the British Association were at the same time presented. A programme for the ensuing year was presented and passed, providing a wide field for further photographic work.

N. London.—On the 21st inst., Mr. Oakley in the chair, a special lantern entertainment was given, when there was a large attendance of the members of the Canonbury Constitutional Club as visitors. About 300 slides were shown, which, with few exceptions, were of excellent quality. Amongst the members of the society contributing were Messrs. Brewer, Clarke, Coventon, Few, Grover, Oakley, Parfitt, Tavener, and Williams. A selection from the Leeds set was also shown, and some slides kindly lent by Messrs. H. M. Hastings and Guardia, were much admired. The next meeting will be on April 11th, instead of Easter Tuesday.

Putney.—The members' annual lantern-slide competition was held on 20th inst., Dr. W. J. Sheppard in the chair. Mr. A. Horsley-Hinton officiated as judge. There were two classes, viz., (A) landscape and seascape, and (B) figure studies, street scenes, portraiture, etc.; the society's bronze medal was given as first, and a certificate as second prize in each class. The slides, in sets of six, having been passed through the lantern by Mr. Ovey, Mr. Horsley-Hinton awarded the prizes as follows: Class A, first prize, Mr. H. Faulkner; second prize, Mr. A. E. Smith; Class B, first prize, Mr. W. F. Gorin; second prize, Mr. W. Martin, jun. Having the power under the rules to award a silver instead of a bronze medal, to the best set should it merit that distinction, Mr. Horsley-Hinton stated that he had no hesitation in giving the silver medal to Mr. Faulkner for his excellent set of landscapes. On Thursday, 23rd inst., the *Photography* Prize Slides were passed through the lantern by Mr. Martin, and deservedly met with a very hearty reception.

Richmond.—On 20th inst., Mr. G. W. Ramsay in the chair, Mr. J. R. Gotz gave an able and interesting demonstration of the treatment of the different varieties of gelatino-chloride and celloido-chloride papers of the well-known Obernetter make. Printed-out transparencies on glass and celluloid, and opals were also shown, the same emulsion being used as for the papers; and specimens were toned with gold and platinum. Mr. Gotz also showed and explained his changing-box for cut films, an admirably designed piece of apparatus capable of holding three dozen films.

Sydenham.—An exhibition of the Amateur Photographer Prize Slides was held on 21st inst. There was a large muster of members and their friends, by whom the slides were greatly appreciated. Mr. C. Chapman, who manipulated the lantern, showed some slides of the landslip at Sandgate, these slides coming as illustrations of such a recent event, created general interest.

South London—Ordinary meeting, 20th inst., the President (Mr. F. W. Edwards) in the chair. A considerable number of prints for the "Winter Work" Competition were handed in for adjudication. Mr. Bainbridge Lyon was declared to have secured the first place with his picture entitled "Roydon." Mr. W. E. Harman's two farmyard studies, and Mr. E. J. Lester's snow-covered trees came next in merit in the order mentioned. Some criticism took place on the other pictures sent in. The judging was done by the President, assisted by Mr. H. G. Banks and the Hon. Sec. Mr. Ransom exhibited a hand-camera called "The Queen," the invention of a South London resident, Miss Nellie Crouch. It was very simple in construction, small in size, and cheap in price, being sold fitted with a single achromatic lens and sheaths by Messrs. Miller and Co., of 122, Newington Butts, S.E, for 15s. 6d.

Stockton.—Quite a treat was given the members on the 21st inst. when Mr. Morgan, from Messrs. Fuerst Bros, London, attended and demonstrated the uses of "Amidol," successfully treating an exposed plate, bromide paper, and a lantern slide. On view also was an album beautifully bound in morocco leather, containing over 140 views which the Hon. Secretary has presented on behalf of the members of the society to the Stockton Hospital for the use of the inmates.

Tooting.—Annual general meeting 22nd inst., the President in the chair. The Hon. Secretary read his report, and submitted Treasurer's balance-sheet the past year, showing balance in hand of £3. The following officers were unanimously re-elected:—President, Mr. A. H. Anderson; Vice-President, Mr. J. H. Beckett; Hon. Treasurer, Mr. C. D'E. Stowell. Mr. J. F. Child was elected Hon. Secretary. A Committee consisting of the following gentlemen was duly elected, viz.: Messrs. H. Berger, G. H. Dollery, W. Irwin, and R. Simmons. A small Sub-Committee was appointed with a view of finding suitable head-quarters.

Wigan.—On the 23rd inst. Mr. Paul Lange, of Liverpool, gave the members the benefit of his experience on "Hand-camera Work." Mr. Lange treated the subject very fully, from the designing to the using of the finished camera. From his remarks it appears that Mr. Lange does not favour magazines, but prefers dark slides. The size considered to be the most useful is that for 5 by 4 plate, and this is the size he has used for some time with marked success. With regard to lenses, there are several makes on the market which he considers all that can be desired, and he is particularly fond of Ross's. The most important point in connection with the subject is, he considers that the largest possible amount of light should reach the plate, so that the lens should be capable of working satisfactorily at $f/8$ or $f/11$. With regard to the focus of the lens for hand-cameras, Mr. Lange is not in favour of either what may be called a long or a short focus lens, but prefers one between the two. For quarter-plate he considers 6 in. the ideal focus, and with such a lens, and the subject not nearer than 30 ft., very little alteration of the focus of the camera is necessary after being once adjusted for this distance. The shutter, Mr. Lange considers, should work either between the lenses of a combination, or behind, and for ordinary subjects need not work at a greater speed than the 1-50th of a second. A finder is absolutely necessary for correct and reliable work, and a swing-back, on this class of camera, Mr. Lange considers useless. With regard to plates, Mr. Lange says, find a good one, master all its peculiarities, and stick to it, and the same remarks apply to the developer. He now uses nothing but Ilford plates, and considers the red label of this make all that could be desired, both as regards speed and ease of development. Mr. Lange exhibited a 5 by 4 camera designed by a friend and himself, which was, in the opinion of those present, as near perfection as anything they had seen. Before concluding, a number of magnificent lantern slides, made from hand-camera negatives by Mr. Lange, were passed through the lantern. These consisted of street scenes, seascapes, Channel fleet pictures, submarine mine effects, etc., and were all heartily applauded.

Woolwich (Polytechnic).—At the meeting held on 22nd inst. the Amateur Photographer 1892 Prize Slides were shown. About two hundred members and friends were present, and a very enjoyable evening was spent.

SOCIETIES' FIXTURES.

Mar. 30—OLDHAM.—"Reminiscences of 1892, Photo Convention and Otherwise."
„ 30—LEIGH.—"Carbon Process."
„ 30—LIVERPOOL.—"Lecture and Practical Demonstration with the Lantern Microscope, with special reference to the Optics of the Lantern and Condensers," by Mr. W. I. Chadwick.
„ 30—LONDON AND PROVINCIAL.—"Stripping Gelatine Plates for Collotype Work," Demonstration by Mr. W. J. Rawlings.
April 3—RICHMOND. — Bank Holiday Excursion — Particulars later.
„ 3—N. SURREY. — AMATEUR PHOTOGRAPHER 1892 Prize Slides.
„ 3—KENSINGTON AND BAYSWATER.—Demonstration, "Sensitising and Printing Rough-surface Papers," Mr. J. A. Hodges.
„ 3—DARLINGTON.—"A Proposal for a National Photographic Record and Survey," Mr. W. Jerome Harrison.
„ 3—BIRMINGHAM.—Society's First Excursion (particulars as to place will be given later on).
„ 4—W. LONDON.—Technical Social Meeting.
„ 4—HEREFORDSHIRE. — Ordinary Meeting to arrange for Summer Months, etc.
„ 4—BOLTON.—"Photo-micrography," Mr. W. Hutchinson; and *Photography* Prize Slides.
„ 4—HACKNEY.—"Photogravure," A. Dawson.
„ 5—THE PHOTO. CLUB.—"Carbon Printing."
„ 5—EASTBOURNE.—"Cresco Fylma," E. Burnham.
„ 5—WAKEFIELD.—"Our Ensuing Summer Work and Outings."
„ 5—ELIZABETHAN.—Members' Evening for Practical Work.
„ 5—YORK.—"Amidol," Mr. L. Morgan.
„ 5.—HALTWHISTLE. — A Lecture by Mrs. Stainsthorpe of Saltburn, "A Holiday in Holland."
„ 6—HULL.—Annual Meeting.
„ 6—ASHTON.—Social Meeting.
„ 6—HARRINGAY.—Demonstration, "Frena System," by Mr. Bynoe.
„ 6—LIVERPOOL.—Lecture by Mr. W. T. Wilkinson, "Printing and Toning on Albumenised and Print-out Gelatino-Chloride Paper, Vignetting, Clouds," etc.
April 7—LEWISHAM. — Annual General Meeting — Election of Officers.
„ 7—BRIGHTON AND SUSSEX.—Exhibition of Prize Prints, etc., by Members of the Society—Report on "Photographic Survey of Sussex."
„ 7—DEWSBURY. — Business Meeting; *Photography* 1892 Prize Slides.
„ 7—LEEDS (Y.M.C.A.).—Wet-Plate Process.

* * *

The Williams Flashlight Apparatus.—Mr. S. M. Williams, a photographer of San Francisco, has invented a new system of artificial lighting. The inventor claims that by his system the flash is equally distributed over a surface of thirty-six square feet; the light not only being thrown directly upon the subject, but over and around it, doing away with the broad high light, dense shadows, and flat, chalky appearance of a more concentrated light, and bringing all objects out round and soft, with nice graduation of half-tones and transparent shadows. He believes that for portraits his system is equal, and on large work superior, to a skylight, as the subject is not only properly lighted, but the exposure is instantaneous on al plates. The apparatus consists of a framework of brass tubes and rods five feet square supported on modern tripod legs, allowing the frame to be lowered to the floor or raised to a height of eight feet. The legs are of iron pipe resting on a frame platform on castors. The two perpendicular tubes on either side support six horizontal tubes, in each of which are six gas burners; behind each burner on a rocking shaft is a cup to receive the charge of powder. These tubes and shafts are detachable at either end, and the machine when packed forms a bundle five feet long, five in ches across, and weighs about twenty pounds. The cup shafts are all connected at one end to a spring catch attached to a pneumatic valve. Gas is admitted to the tubing through a rubber tube. The cups are held in a horizontal position by the spring catch, allowing them to be loaded. The gas is lighted by each burner. A rubber tube leads from the valve on catch to a bulb; from the same bulb another tube connects with the camera shutter; a pressure of this bulb opens the shutter and releases the springs on the cup shafts; the cups thereby being thrown forward, scattering their charges of powder into the gas flame. As the powder is burned in mid-air it produces the greatest illumination possible. The expense of operating is slight, one half grain of powder in each cup being sufficient for a cabinet picture. A company which has been formed is now turning out these machines at a very moderate cost.—"*Pacific Coast Photographer*," January, 1893.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer Questions by post.

QUERIES.

6003. **Greek Studies.**—I should very much like to know how Greek studies are best made—the background, plate, light, stop, etc.? An answer by an experienced worker will greatly oblige.—MAUD.

6004. **Toning Solio Paper.**—I have some prints on Solio paper which I want to tone similar to a bromide print. Which toning bath had I best use?—AMID C.

6005. **St Albans.**—How can an amateur best spend a day at St. Albans at this time of the year?—HERTS.

6006. **Level.**—Which form of a level for a camera can any of your readers recommend?—SOCE.

6007. **Deep Dishes.**—Where can I obtain deep vulcanite dishes? It appears that they are only made shallow. Is this so?—D. BOS.

6008. **Photo Engraving.**—A few hints on how to manage photo-engraving, and the most suitable book for a beginner, will be received with thanks.—DICK.

6009. **Rubber.**—The tube and ball of my pneumatic shutter have got hard during the winter. What can I do to soften them so as to be able to use again?—KYBOSH

6010. **Bromide Prints.**—What is the cause of these being hard and very black and white in appearance? Is it under or over exposure? Has the developer, hydroquinone, anything to do with it? Some have a brownish tinge; why is this?—KYBOSH.

6011. **Madeira.**—I should feel obliged by any information *re* exposures and points of interest.—A. B. K. (address with Editor).

6012. **Surrey.**—Would like to hear about some places of interest in Surrey and Sussex for photos near Dorking, Horsham, and Cuckfield, between Dorking and Croydon, between Sydenham and Redhill, between Redhill and East Grinstead, between East Grinstead and Newhaven.—T. H. L.

6013. **Ventilating Dark-Room.**—Will some reader kindly tell me the simplest way to ventilate my dark-room, which is 10 ft. high, 4 ft. broad, and 8ft. long, with window opposite sink? I have a covered frame which fits over window to block light out.—YCREP.

ANSWERS.

5992. **Lantern Slide Developer.**—"Fen Doctor" will find a first-rate hydroquinone developer (Dresser's) I gave in answer to 5959 in AMATEUR PHOTOGRAPHER of March 17th.—ECLIPSE.

5992. **Lantern Slide Developer.**—The only developers by which I have been able to obtain at all satisfactory lantern slides are Lockyer's hydroquinone developer (one solution) and amidol. Both of these can be had at most dealers', and in my opinion have not been beaten.—MONTROSE.

5997. **Clearing Bath.**—Mr. E. J. Wall, in his "Dictionary of Photography," gives the following bath as his favourite:—

Chrome alum	1 oz.
Citric acid	1 „
Water	20 „

The reason why is because the chrome alum has a special tanning action on the film much superior to ordinary alum. The addition of a little ferrous sulphate has been recommended, but without any increased benefit. When plates are developed by pyrogallol and soda, a very non-actinic yellow colour is given to the film, which protracts the operation of printing most inordinately. By use of the chrome-alum bath, this colour is changed to fine olive green, which does not protract printing. In the case of ferrous oxalate development, the same bath is useful for clearing off the deposit of oxalate of lime due to the use of hard water, whether on negatives, positives, opals, or paper. Mr. B. J. Edwards has suggested the following, which, as it possesses one or two features distinct from the others, is here given:—

1.

Alum	1 oz.
Citric acid	1 „
Water	15 „

2.

Sat. solution of sulphate of iron. 5 oz.

For ordinary use one part of No. 2 is mixed with three parts of No. 1. If the negative is a little too dense, the use of No. 1 solution alone will reduce the same. If not quite dense enough, the use of No. 2 alone will often give the slight snap required to produce a perfect negative. Mr. Edwards recommends the use of this clearing bath immediately after the fixing, the plate being only just rinsed after being taken out of the fixing bath.—D. H. W. PREEDY.

6000. **Lens.**—Lancaster's lens will suit, but better ones can be had for a little extra cash from any of the lens makers, such as Wray, and Perken, Son and Rayment's Optimus lenses.—MONTROSE.

6002. **Changing Bag.**—Take a piece of black silesia (double thickness) and form a bag 3 ft. long by 2 ft. wide, stitching a piece of tape around the open end to enable it to be drawn together. Then cut a piece 6 in. square from one of the sides, and insert a piece of ruby medium. To change, put the bag over your head and draw the tape tightly around your waist, the slide and the plates having been previously placed inside.—D. H. W. PREEDY.

QUERIES UNANSWERED.

March 17.—Nos. 5979, 5980, 5987.
„ 24.—Nos. 5990, 5991, 5994, 5905, 5996, 5998, 5999, 6001.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

C. W. CHITTY.—Try Butcher's, of Blackheath, mountant.

H. N.—Your query is inadmissible, but the articles named are efficient but heavy.

LIVERPOOL.—We regret we cannot admit your letter, but we will see advertisers.

OPTIMIST.—Your letter should have been surely sent to the manufacturers, not to us; this is a matter we certainly cannot interfere in.

J. L. T.—We are not aware that uranium will give red tones with chloride paper. Why not try toning slightly with gold and then fixing? A uranium bath which can be used for chloride paper is the following:

Chloride of gold	4 gr.
Uranium nitrate	4 ,,
Carbonate of soda	60 ,,
Chloride of sodium	60 ,,
Acetate of sodium	60 ,,
Distilled water	32 oz.

J. N. K.—No, certainly not necessary to back plates under the conditions named.

VITREOUS.—(1) We will write you *re* slides. (2) You can get the relief you want, but we do not know of any one who would do it for you. (3) Yes. There is a special process of enamelling by the carbon process. To prepare enamels by the pigment process make a mixture of—

Gum arabic	3 parts.
Distilled water	30 ,,

Filter through flannel. Then add—

Sugar	1 part.
Bichromate of potash	2 parts.
Glycerine	5 ,,

And as much liq. ammonia ·880 as will make the solution light yellow. Black porcelain colour previously mixed with flux, is added till a drop looks quite opaque on glass. A sheet of glass is coated with vaseline and polished and coated with the above till quite black when looked through. This is then dried in an oven. When half dry, a sheet of damp stout paper is squeegeed into contact and the whole thoroughly dried at 50 deg. C. When dry, the paper and film is stripped from the glass and exposed for a short time under a negative. The porcelain on to which the image is to be burnt is coated thinly with a solution of—

Gum arabic	5 parts.
Bichromate of potash	1 part.
Distilled water	500 parts.

It should then be dried and exposed for some hours to a bright light to render it insoluble. The exposed tissue is made limp in water, squeegeed into contact with the porcelain, and developed with warm water exactly as in the carbon process, then half dried by flooding with spirit. Then completely dried with a gentle heat and coated with a varnish composed of turpentine and tar oil. As soon as the varnish has become tacky, it is dusted all over with flux and burnt in a muffle. We believe that a new process is shortly to be placed on the market, and if you like we will write you further on the subject.

J. B.—Captain Abney gives the following method for finding the size of pinholes for any given distance between plate and pinhole:—$\cdot 008\sqrt{b}$, or, in words, the square root of the distance of the hole from the plate multiplied by ·008 will give the diameter of the pinhole in inches.

G. B.—There is no method of getting the starch mark off the print. You are using too much mountant. Try one of a less watery character, such as Butcher's, Marion's, or Houghton's.

DEUX YEUX.—The Stereoscopic Competition does not close till March 31st, and after that we shall reproduce the winning slides.

A CONSTANT CONTRIBUTOR.—Belitzski's formula is, we believe:

Chloride of lime	360 gr.
Water	5 oz.

Mix and filter, and add—

Zinc sulphate	570 gr.
Water	5 oz.

And filter. One drachm of the filtrate to be added to 5 oz. of water for eliminating hypo.

SAPOLIO.—We should be inclined to take your dealer's advice. Can't do better.

H. SYLVESTRI.—You must measure the distance from diaphragm to inside of ground-glass after having focussed on an object at least 100 yards distant; then let us know and repeat your query.

H. C. BABINGTON.—The marks are due to pressure. The reason of their not appearing on some plates is to be accounted for by those plates not being packed so tightly. Pressure will produce a developable image without the action of light. For the future always stick the stamp paper on a corner of the plate, when, if it does mark the plate below, not much damage would be done, but had you packed your plates film to film, all your trouble would have been avoided.

W. S MELLING.—Your order duly handed to publishers with thanks. No. 2 camera is constructed to take lantern size films only, and would, therefore, meet your requirements exactly.

D S. W.—We do not think there is a pin to choose between the lenses named; both work at *f*/8, which is rather slow for portraiture.

NIKLE.—Carry your toning further, till on looking through the print the red has disappeared from the shadows.

AREMAC.—The lens could be used in a hand-camera, and you will find in vol. xvi., pp. 20, 53, and 323, instructions for making a camera.

THE ARCHER.—(1) Gelatino-chloride paper is coated with an emulsion of chloride and citrate of silver, which is spread on the paper in a somewhat analogous method to coating dry plates. Woodbury's book on "Gelatino-chloride Printing," to be had from our publishers, price 2s., would give you every information. (2) You would find full directions for making printing-out platinotype paper in Wall's "Dictionary of Photography," p. 187.

J. C.—Always number prints sent for criticism, please. (1) 1½in. too much foreground. (2) Fair. (3) Nicely balanced. (4) Wants clouds. (5) An inch too much foreground. (6) Fair. (7) Very good, but overprinted. (8) Too much foreground. (9) Printed too deep. All your prints are spoilt by over-toning. Send address and we will return prints.

J. K. SMITH.—(1) You may safely choose any of the lenses named for instantaneous work. (2) The plates named are suitable for instantaneous work.

A. P. S.—Take No. 3 films. Besides the old church, you will have plenty of tree studies in Epping Forest, but we know of nothing else.

W. J. CARRIGAN.—If you send P. O. to Watkinson Bros., Harrison Street, Leeds, they will send you bellows.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence*** *Every additional* ***three words, one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one word****; compound words count as* ***two words****.)*

DEPOSITS.—*money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge* 1s.

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of* 3d. *to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.****, or a commission of* ***2½ per cent.****, upon the sale price of the apparatus.*

Cameras, etc. — Magnificent quarter-plate, six double backs, finest workmanship, approval with pleasure —W., 259, Oxford Street.

Cameras, Lenses, etc. — Whole-plate Watson's Premier camera, four double backs, bags, etc., 8½ by 6½ Ross' R.S. lens, equal to new, £15.—H., 55, Val Plaisant, Jersey.

Camera, mahogany Box, stereo, removable front, quarter and 5 by 4, 13s.; lens, Ross' compound, for stereo portraits, groups, and views, 3½in. focus, rack, pinion, and diaphragms, 25s., condition good; AMATEUR PHOTOGRAPHER, February, '90, to March, '93, unbound, 11s.—No. 391, office of this paper, 1, Creed Lane, Ludgate Hill, E C.

Half-plate camera, best make, three double backs, Optimus euryscope, Taylor's mid-angle lens, very little used, seen any day by appointment, price £10.—Frederick Holmes, French Embassy, Albert Gate, Knightsbridge, London, S.W.

Half-plate Underwood's Instantograph camera, long focus, leather bellows, double swing, double slide, waterproof bag, half-plate R R. lens and W.A.R. lens, Decoudun's exposure meter, all as new, lot £6.—Hetherington, 39, Stanhope Street, Newcastle-on-Tyne.

Hand-cameras, etc.—Vanneck hand-camera by Watson, list price 10 guineas, perfect condition, focussing on reflecting finder showing objects same size as on plate, takes 12 quarter-plates in sheaths, R.R. lens, iris diaphragm, price 8 guineas.—Dr. Gibbs, 27, Chandos Road, Bristol.

Talmer hand-camera for 25s. May be seen between 1 and 2 at 41, Bishopsgate Street Within.

Lancaster's Rover hand-camera, fine lens, good as new, in case, cost 63s., take 40s.—Walker, 73, St. Bees Street, Manchester.

Quarter-plate reflector focussing hand-camera with Eastman rollholder, no lens, takes from 6¾ to 7¾ focus lens, 50s.; Optimus 8in. condenser, as new, 50s.; grey cloth background, 6 by 8, 5s. Wanted, lantern with 4in condensers, which could be used for enlarging by good maker.—W. G. Perks, Clevelands, Walthamstow.

Frena for sale, as new, leather case, book of instructions. Can be seen in London or Croydon.—G., 60, Canterbury Road, W. Croydon. [Sold.]

Lenses, etc.—Half-plate rapid rectilinear, Waterhouse stops, focus 7½in., 13s.—Miss Summers, Hillesley, Glos.

Cabinet portrait lens, price 15s., or exchange for Kershaw or Thornton-Pickard shutter, any size.—John Chalmers, 61, Campbell Street, Hamilton.

Ross' 10 by 8 rapid symmetrical, perfect condition, as new, £5 5s.; approval; deposit.—N. Abbotsfield, Mannamead, Plymouth.

Half-plate rapid rectilinear lens, grand definition, works *f*/8, fitted iris stops, moveable hood, guaranteed to cover well, in very finest condition, approval, take 30s.—Mrs. Bell, 25, Nelson Road, Clyde Road, Tottenham, N.

Ross' half-plate rapid symmetrical lens, Newman shutter, £4 15s., cost £6 18s., guaranteed perfect, as new. Wanted, whole-plate, or larger, or Shew's hand-camera —J. Oliver, 2, Royal Terrace, Glasgow.

Rollholder.—Whole Eastman rollholder containing about 40 exposures, perfect condition, £4.—J. Duncan Pearson, Chilwell, Notts.

Eastman rollholder for 48 exposures, quarter-plate, 25s.; approval; deposit.—M., Beaconsfield House, Kilmainham, Dublin.

Sets. – Half-plate camera, three double slides, brass-bound, Optimus rapid rectilinear and Lancaster's wide-angle lenses, Newman's shutter, solid leather case, four-fold tripod, good condition, cost £14, price £8.—C. Oldfield, Sedgehill, Shaftesbury.

Half-plate new camera, finest mahogany, every movement, conical leather bellows, long extension, rising and falling front, brass turntable, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, special instantaneous shutter for time and rapid exposure, three-fold tripod, velvet focussing cloth, four dishes, nine printing frames, actinometer, ruby lamp, cupboard containing chemicals in stoppered bottles, weights and scales, Tylar's polishing slab, 12-plate draining rack, electric changing lamp, and other sundries, price £10, must sell.—22, Siebert Road, Westcombe Park.

Underwood Stereograph, four slides, lenses (stereo and half-plate), Thornton shutter, tripod, waterproof case, £8, or offers. –Platt, Brunswick, Ashton.

Half-plate set, Lancaster's half-plate Instantograph, R.R. lens, also portrait lens, two double slides, lock-up camera case, retouching desk, burnisher, and all accessories, cheap.—R. Spinner, 23, Leslie Park Road, Croydon.

Lancaster's Instantograph, double slide, lens, and tripod, in good condition, £3 10s., or exchange for safety; must be good; difference in cash.—R. Rouse, Park Street, Towcester.

–For sale, Shephard's c.-d.-v. lens, quarter-plate camera, one double slide, and tripod, complete, 35s.; for sale, portable dark-room on wheels, 42s.—Pierre, 30, North Street, Horsham.

£2 15s., or offer. Quarter-plate (American Camera Company's), first-class single view lens, double dark slide, three-fold brass-mounted tripod, instantaneous shutter (Guerry's patent, cost £1 12s. 6d.), bag, focussing cloth, etc., a bargain.—R., 1, Sedgmoor Villas, Southampton Street, Camberwell, S.E.

Shutter.—Half-plate focal plane shutter, new, cost 45s., for sale, or exchange quarter-plate rapid lens by good maker.—No. 392, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Stereoscopic Apparatus. — Lancaster's £5 5s stereo Instantograph, complete, with extra R.R. and landscape lenses, case, slides, etc., cheap.—Particulars, Copeman, Henstridge.

Chadwick's complete stereoscopic outfit for £9, original net cost £15; approval; deposit.—Rev. Marshall, Cloisters, Windsor.

Stereo camera (Griffiths'), splendid condition, 30s. lowest, cost £2 5s.—Pollard, 46, Green Street, South Shields.

Sundries. — Will exchange Cassell's illustrated "Shakespeare," 60 parts, quite clean, cost 35s., for hand-camera.—Particulars to Johnson, 49, Oldham Road, Failsworth, Manchester.

"A satisfactory guide."—*Amateur Photography.* Dibdin's "Automatic Exposure Table," 1s.; case 3d. —Grange Road, Sutton, Surrey.

Tripod.—Four-fold tripod, brand new, will accept 7s. 6d., suitable for bicyclist or lady.—Lancet, 1, Hungerford Villas, Long Ditton.

WANTED.

Cameras, etc.—Wanted, quarter-plate double extension camera, without lens or slides.—H. Norris, 15, Seymour Grove, Old Trafford, Manchester.

Lenses, etc. — Wanted, whole-plate wide-angle rectilinear; exchange new Lancaster's whole wide-angle single, Wall's "Dictionary," "Art Retouching," "The Studio," etc., "American Annual, 1893." Offers?—Tims, Welshpool.

Rollholder.—Wanted, quarter rollholder or changing box, cheap; approval.—C. I., 5, Hill Road, N.W.

Sets.—Wanted, half-plate set, good lens, cash.—J. J. Martin, House Furnisher Sedbergh, Yorks.

Shutter—Thornton-Pickard shutter wanted, 1¾in.—H., 29, Twisden Road, N.W.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Cameras and Sets.—Camera, 10 by 8 finest mahogany, double extension, leather bellows, wide-angle movement, rising and falling front, fine rapid rectilinear lens, Waterhouse stops, two double slides, clips, and catches, and sliding two-fold stand as new, £8 15s.; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; whole plate camera, as new, by Laverne, rising, falling, and cross, reversing wide-angle movement, best double extension, leather bellows, rapid rectilinear lens, Waterhouse stops, three double slides, and folding stand, warranted, £8 7s. 6d.; half-plate camera by Houghton, Holborn, grand lot, double extension, rising and falling front, swing and reversing back, three double slides, grand rapid rectilinear lens, iris stops, works f/8, and three-fold stand, set as new, £6 10s; Rapidograph half-plate camera, by Perken, Son, and Rayment, double extension, leather bellows, reversing and swing, three double slides, fine rapid rectilinear "Leviathan" lens, iris stops, grand definition, three-fold stand and case, £6 17s. 6d.; half plate Underwood's Instanto camera, leather bellows, square wide-angle movement, rising, falling, and cross fronts, double dark slide, quarter carrier, rapid rectilinear lens, Waterhouse stops, and folding stand, £3 17s. 6d.; half-plate "Duke" camera, double extension leather bellows, rising, falling, and panel front, back and front extension, two double slides, metal division, rapid rectilinear Waterhouse stops, and folding stand, as new, £6 5s.; Lancaster's 5 by 4 International, all latest improvements, wide-angle movements, fitted Optimus rapid rectilinear lens, iris stops, double slides, and folding stand, £3 15s.; Underwood's quarter-plate Instanto camera, all movements, back extension, etc., lens, iris stops, instantaneous shutter, and folding stand, 37s. 6d. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Tench No. 7 landscape, covers 12 by 10, rotating stops, grand definition, as new, 70s., cost £3 10s.; Dallmeyer No. 3 10 by 8 rectilinear landscape, Waterhouse stops, finest condition, £4 17s. 6d.; whole-plate rapid rectilinear by Parker, Waterhouse stops, movable hood, 42s.; whole-plate rapid rectilinear by Watson, Holborn, fitted iris stops, works f/8, condition as new, 75s.; 7 by 5 rapid rectilinear (Leviathan), iris stops, grand definition covers well, 30s.; half plate rapid Euryscope by Bauz, works f/6, Waterhouse stops, grand article, 35s.; 5 by 4 rapid rectilinear, by Wray, iris stops, works f/5·6, condition as new, 45s,; whole-plate wide-angle rectilinear, by Laverne, fine definition, rotating stops, as new, 30s.; 7 by 5 Optimus landscape lens, rotating stops, finest condition, 27s. 6d.; 5 by 4 Dallmeyer wide-angle landscape (1 A patent), rotating stops, grand definition, 50s.; 7 by 5 "Black Band" lens by London Stereoscopic Co., Waterhouse stops, covers well, finest order, 45s.; Ross's No. 4 portable symmetrical, 6 in. focus, rotating stops, as new, 63s.; Laverne 5 by 4 wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B), Waterhouse stops, rack focussing, condition as new, £3 17s, 6d., cost £6 5s. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

Bargains in Hand Cameras.—Adams' Ideal hand-cameras, fitted rapid rectilinear lens, time and instantaneous shutter, two finders, carries twelve quarter-plates, covered morocco, £5 7s. 6d.; Houghton "London" hand-camera, fitted good lens, adjustable finder, shutter for twelve quarter-plates, ebonised, as new, 45s.; Talmer hand-camera, Taylor and Hobson's finder, good lens, time and instantaneous shutter, bag changing, twelve quarter-plates, finest condition, take 40s.; Lancaster's Rover hand-camera, fitted Lancaster lens, Thornton-Pickard shutter, finder, etc., size, quarter-plate, in leather case, £2 12s. 6d.; Fallowfield's Facile hand camera, fitted R.R. lens, time and instantaneous shutter, carries 12 ¼-plates, condition as new, £3 17s. 6d.; Swinden and Earp hand-camera, fitted Laverne rapid rectilinear lens, Waterhouse stops, Kershaw shutter, adjustable focus, carries 20 ¼-plates, £5; Laverne's hand-camera, covered morocco, good lens, iris stops, time and instantaneous shutter, two finders, carries twelve quarter-plates, 60s.; No. 1 Kodak, R.R. lens, shutter, etc., carries 100 films, in leather case, 37s. 6d., cost £5 5s.; Radial hand camera, by Marion, fitted "Soho" lens, carries twelve quarter-plates, shutter, two finders, focusser, etc., in leather case, £5 17s. 6d.; Optimus detective camera, carries twelve quarter-plates, brass bound, fitted Wray's 5 by 4 R.R. lens, Thornton-Pickard shutter, two finders, level, etc., as new, £5 7s. 6d. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Magic Lanterns and Slides. — Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in, condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

Regulators and Gauges.—Great reduction, in price. Either can now be had of Walter Tyler for 14s. each. The largest stock of gas cylinders in England. Best seamless steel, tested and valved, and all sizes at very low prices.

Slides from Negatives and Pictures.—Walter Tyler manufactures and colours slides on the premises, thus ensuring speedy delivery, and prices are most moderate.—Walter Tyler, 48, Waterloo Road, London.

Biunial Lanterns.—If you are in want of a really good biunial lantern, perfect in every respect, call and see Walter Tyler's entire brass fronted, mahogany-bodied, lined with Russian iron, and fitted with new best quality lenses, and sold at a most moderate price. The top lantern will take a 4-wick lamp. These are great bargains.—Walter Tyler, 48, Waterloo Road, London.

Hire Department is now perfect. Largest and best collection of slides in the world; over 200,000 always in stock. Temperance, travels, Scripture, educational, comic, tales, etc. Cheaper than any other house, no extra charge for coloured slides or effects. Special terms for large quantities.—Walter Tyler, 48, Waterloo Road, London

Lanterns and Slides.—If you wish to hire, purchase, or exchange, you cannot possibly do better than go to Walter Tyler, who makes this business a specialite, and you will thus save dealer's and all intermediate profits.—Walter Tyler, 48, Waterloo Road, London.

Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps. Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; scientifically constructed, not commercial; several whole and half plate for sale, cheap.

The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Science Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

Magic Lanterns, Magic Lanterns.—Largest assortment in the world, cheapest and best, nicely japanned lantern, 4 in. double condensers, portrait combination front lenses, rack and pinion, four-wick lamp, in case, £1 7s. 6d. Others more elaborate, but as cheap.

The Docwra Triple Prize Medal, highest award, supplied to Dr. H. Grattan Guinness, Capt. C. Selwyn, Madame Adelina Patti, and the Royal Polytechnic, etc.

The Malden Triple; supplied to B J. Malden, Esq.; unparalleled results; Capt. Chas. Reade, R.N.

Fine Triple Lantern; telescopic draw tubes, four set of high-class lenses, £38 10s., worth nearly double. Given away.

Special Triple; mahogany, entire solid brass fronts, £12 12s.; a really good lantern, unequalled.

Elegant Mahogany Biunial; brass fronts, £7 10s.; blow-through safety jets, 6s. 6d. and 8s. 6d.; mixed gas jet, 12s. 6d.; Malden double dissolving tap, 12s. 6d.; regulators, 12s. 6d.; gauges, 12s. 6d.; grand effects; particulars free, before purchasing. Send for Mr. Hughes's grandly illustrated catalogue, over 180 finely cut original wood engravings, price 6d., postage 3d.; separate list of 60,000 slides, price 6d., postage 3d.; pamphlets free; second-hand lists free of bargains.—W. C. Hughes, Brewster House, Mortimer Road, Kingsland, London, N. Fifty slides, all nicely coloured, on loan for 3s., in special despatch boxes.

EASTMAN PHOTOGRAPHIC COMPANY.—Ten Preference Shares in this Company for sale. What offers?—No 390, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

ENLARGING APPARATUS, quarter-plate, 5in. condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work. —Hume, 1, West College Street, Edinburgh.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

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SECOND ANNUAL STOCK-REDUCING SALE to clear for the coming Season, 50 per cent. Reduction in some cases! New high-class Cameras, all sizes; Platinotype and Key Hand-Cameras. Ross, Dallmeyer, Beck, and Wray's R.R. and Wide-Angle Lenses. 50,000 Mounts, all sizes; Canvas and Leather Cases, Tripods, Presses, Dishes, and all Accessories. Special opportunity to purchase complete outfits at great reductions. Printed Lists on application to EDWARD PECK, Photographic Chemist, East Dereham, Norfolk.

"THE QUEEN" HAND CAMERA, 15/6,

Carries 12 ¼-plates or films, in sheaths that will take any thickness glass; has a time and instantaneous Shutter always set ready for exposure; no springs to get out of order; changing of plates very simple and rapid; any one can use it; no sticking of plates in changing; weight *less than three pounds;* will take pictures either way of plate, with good definition at edge of plate. This is a remarkable instrument for the money—only 15/6, covered in good cloth; 22/6, covered in real leather and fitted with two view-finders. Send 2½d. for sample photograph taken with this instrument in London, to the Factory, Messrs. N. Crouch & Co., 122, Newington Butts, S.E.

Negative Guides for Amateur Photographers.

I shall, on receipt of Postal Order for 2s. 6d., send per parcel post, to any address in the United Kingdom, Three Negatives securely packed. No. 1, a perfect negative showing what beginners in photography must get, and with note stating Subject, Stop used, Exposure, Developer used, Name of Plate, Remarks, etc. No 2, over exposed No. 3, Under-exposed. Amateurs studying these negatives and notes for half-an-hour will save time, money, and disappointment. Apply,

JAMES ALLAN, 7, King St., City, GLASGOW.

THE BOOK OF THE LANTERN.

By T. C. Hepworth, F.C.S.

A Practical Guide to the Working of the Optical (or Magic) Lantern—either as an Educational Instrument, for Exhibition Purposes, or as an Enlarging Apparatus for Photographers. With full and precise Directions for Making and Colouring Lantern Pictures. Price 3s. 6d., post free.

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THE AMATEUR PHOTOGRAPHER

Telephone No. 1645 Telegraphic Address: VINEY, LONDON

Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 444. Vol. XVII.] FRIDAY, APRIL 7, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 till 5 o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from 10 till 1 o'clock.

Our Views.—A Slip—Glass Paper—The Vienna Institute—Photos micrographs of Dust—Photographic Properties of Cerium Salt—Norway—Another Royal Photographer—A Wag's Remarks—An Amusing Incident—The New Order—A Question—The Degeneracy of a Club—A Hand-Camera—The Central Photographic Club—A Moon Negative—A New Use for the Telephoto-Lens—Psychic Photography.

Leader.—Orthochromatic Photography.

Letters.—Photo Convention Slides (Worth)—Proposed Hand-Camera Club (Welford)—A Prize to Every Competitor (Maclean).

Articles.—Photographic Procedure (Wall)—General and Photographic Chemistry (Conrad)—The Relation of Art to Photography—On the Theory and Practice of Intensification (Baldock)—A Trip from the Thames to the Clyde and Back (Goddard).

The A B C of the Lantern.

Apparatus.—Lewis Stereoscope.

Societies' Meetings.—Ashton-under-Lyne—Bath—Blackheath—City of London—Cornish—East London—Hackney—Liverpool A.P.A.—North Middlesex—Phot. Soc. of Ireland—West London.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

TERMS OF SUBSCRIPTION—

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of **Three Words for One Penny**) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Competition, No. 47. Hand-Camera Work.—Latest day, April 13th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, April 28th, 1893.)

A slip has unfortunately been made with regard to our Monthly Competition ending on 13th inst. In the notice at the bottom of the first column on this page it was stated "two slides to be sent in." This should read, "one print only to be sent in." For the next six months all our competitions are for prints, not slides.

◆

If report speaks the truth, we are to have yet another flexible support for photographic purposes. A Japanese inventor is stated to have discovered the art of making "glass paper" from an aquatic plant. The features of the "glass paper" are a transparency equal to glass, greater strength than paper, and great tenacity combined with flexibility. If all that is claimed for this be true, we may yet have a return to the old term "paper negatives."

◆

The K. K. Lehr und Versuchanstalt at Vienna, under the directorship of Dr. Eder, has long held the premier position as a teaching and experimental body, upon the lines of which it was suggested to model an English photographic institute. Not only does the Vienna Institute hold classes for photography, subsidised by the State, but it also undertakes important experimental work for the public good.

◆

The latest work is photo-micrographic research into the nature of the dust and its possible influence on the health of the workpeople; and for this purpose photo-micrographs of the dust to be found daily in workshops and factories have been made by Herr Valenta. The results obtained have now been published with explanatory text, and are said to be likely to be of great value to the medical authorities.

◆

MM. Auguste and Louis Lumiere have presented a note to the Academie des Sciences de Paris upon the photographic properties of the cerium salts, from which it appears that the ceric salts are easily reduced, and the sulphate and nitrate were the most promising. Under the influence of light a change of colour is produced, and the image developed by the aid of one of the aromatic carbon compounds, which forms an insoluble compound with the unreduced ceric salt. This is, then, what has been termed a positive process—that is to say, a positive produces a positive.

◆

A correspondent sends us the following note, which may be useful to intending trippers to Norway:—"The light is not much—perhaps a trifle—brighter than in England, though at times glaring. A long-focus lens is an absolute necessity, and a hand-camera is useful, as numerous snap-shots may be had as the landing stages are approached. If any land travelling is to be done the plates must be very carefully repacked after exposure, as the jolting is terrific. All my plate boxes were labelled as follows :—

'Photografiske Pladar,
Maa ikke aabnes uden ved
Rodt Lys ;'

but I found but little trouble with the customs officer."

* * *

Yet another member of the Royal Family, in the person of H.R.H. the Duke of York, it is said, has been added to the roll of amateurs, as lately he was seen "snap-shotting" at Genoa along the promenade and quay.

* * *

The photographer, whether amateur or professional, who pursues his calling or hobby in public places or thoroughfares is always liable to remarks, in some instances by no means flattering. We remember well, at the outing of a certain provincial society, which had invaded a village with some charming old timbered cottages, at which no less than seven cameras were levelled, that one gentleman, noted for his small stature and big camera—a 15 by 12, by the way—was told by some wag to get inside and pull the blinds down. This sort of thing is by no means easy to take with due scorn. It is rather apt to upset one's equanimity, especially that of a beginner.

* * *

In the current number of the *Fireside* Mr. W. T. Stratton, in an article entitled "Our Art Gallery : Studies in Amateur Photography," tells the following charming little incident :—

> "'Plaise, yer honour, will ye condiscind to shelter in the cabin ? Shure an' it'll be a dale bether pertection than that same !'
>
> "I do not know that my constitution differs from that of the average mortal, but my back immediately became the channel for a cold shiver. I felt something like I used to do when a child with the bed clothes smothering me, and a sensation or impression that some one was standing over me. And yet there was nothing to be frightened at. My head had been buried in the folds of my camera cloth for quite five minutes. In fact, I had been shuffling from place to place, trying to find a really artistic standpoint from which to take my photograph. First it was the trees waving in the wind ; then the walls of the cabin would not stand straight on the focussing glass ; and before I could feel satisfied down came the big herald drops of an Irish shower. I gave the focussing wheel an angry twist, and was just reaching round to put on the cap, when a voice close behind me startled me out of my pokelike position.
>
> "My camera legs subsided in the usual way, and the whole machine nearly came to the ground. When I did get free I found that I had been disturbed by nothing more formidable than an Irish woman. If the voice had sounded strange, its owner was scarcely less so. Out of a pair of glittering eyes, a scantily-dressed peasant wife of about forty gazed curiously at my queer shelter, for as such she imagined I was using my camera."

We have heard of a good many suggestions as to the possible uses of a camera, its cloth and legs, but surely this is the first time any one took it for a *parapluie*.

* * *

"The old order changeth, yielding place to new," slowly but surely, and a striking example of the truth of this was to have been seen this holiday time near the entrance to one of our London parks. On one side of the road was to be seen an old wet plate photographer with his box on wheels, his wooden-bodied camera and huge lens, and, unfortunately for him, his show of specimens, by no means so bad as usual, entirely neglected, a fit type of the old order ; whilst on the other side was a dapper young man, with irreproachably clean collar and cuffs, with a neat little apparatus sparkling with French polish, and made mysterious by a curious arrangement of indiarubber bottles and tubes, which we recognised as Nievsky's patent arrangement for ferrotype dry plates. This was surrounded by an admiring and curious crowd, to whom the whole thing was learnedly, if not quite truthfully, explained by the dapper orator, who certainly had some good specimens to show, and, judging for the few moments we looked on, was driving a roaring trade, there being quite a pleasant rivalry as to who should be taken by the "new patent automatic lightning camera," as our friend called it. Is the old wet plate and the old familiar box doomed ?

* * *

We review elsewhere "The Blue Book of Amateur Photographers." A question in connection with this book has been raised by a correspondent which we are unable to answer ; it is this : Is the secretary of a society at liberty to furnish any one with a member's private address for publication ?

* * *

O tempora, O mores ! It is our sad duty to record certain facts which seem to point unmistakably to the degeneracy of one of our photographic clubs, and the lack of interest taken in its affairs by the majority of the members. It appears that a lantern display was announced to take place. At the appointed time one or two visitors who had arrived found that there were only about four members present (including the Secretary), and these were holding a cabinet council, being deeply engaged in a solemn conclave as to whether or not the lantern should be obtained and erected. Where were the nine—or rather where were the other members ? It seems that they were not adherents of Sir Wilfrid Lawson, and finding things in general rather dull at the club, a resolution was put and carried, that the meeting do adjourn *sine die* to the nearest "pub," the interests of their club and the photographic world to be discussed with the aid of sundry foaming flagons ! "There is something rotten in the state of Denmark." Unless a strong effort is made to keep the members togethers, and to keep up the attractiveness of the functions of the club, it will ultimately find that the attendance at its meetings will gradually but surely dwindle away.

* * *

What a simple thing a hand-camera appears ! To the uninitiated mind, versed only in the doctrine of "You press the button, etc.," it seems the easiest thing in creation to take a good snap-shot ; and in the first ecstacy born of his purchase, the novice smiles a superior smile, hinting darkly of the wondrous deeds he will shortly perform. The experienced photographer who, however, has confined his knowledge to the tripod species only, not having before wrestled with a delusive hand-camera, has much to learn, trials and tribulations to endure, and much patience to cultivate ere he becomes an expert. Kind reader, pity the sorrows of the amateur who travels many miles to a certain place, and who after exposing one or two plates or films suddenly discovers that one of them has got hopelessly jammed, and that his work for the time being is brought abruptly to a conclusion. We are afraid that the patriarchal Job under similar circumstances would have lost his reputation.

* * *

The Central Photographic Club.—The Committee of the Central Photographic Club have completed the consideration of the scheme upon which it is proposed the club shall be based and those gentlemen who have promised to join, as well as all interested, are invited to a public meeting to discuss the proposals of the Committee, to be held at the Memorial Hall, Farringdon Street, E.C., on Monday, April 17th, at eight o'clock.

* * *

Mr. W. Rice has shown us a very good negative of the moon taken on Friday last when the moon was within a few hours of being full, with Dallmeyer's Telephotographic lens, stopped down to about *f*/24, with 1 sec. exposure. The image is about three-quarters of an inch in diameter, full of detail. Several stars are also included, and are as sharp as could be desired. Mr. Rice has several pairs of negatives showing the enormously increased size of distant subjects to be attained with this lens.

There is one advantage of this lens which we do not think Mr. Dallmeyer has taken much if any note of, and that is that to those poor business men confined to smoky London, by stress of business or other matters, it will be a great boon as they may be able to go to the top of some high hill or a monument with their camera and a Telephoto lens and obtain a negative of some seaside or country resort, and thus imagine the pleasures of being there. We haven't patented this particular application of the Telephoto lens, so Mr. Dallmeyer if he likes is at liberty to recommend it for this purpose.

* * *

Our readers will remember our article on "Psychic Photography," written after hearing Mr. Traill Taylor's paper read at the London and Provincial Photographic Association; in this we stated that the darkening of the room did not satisfy us, and was a weak point at which trickery and chicanery might be introduced if anyone were so disposed. Messrs. Glendinning and Duguid, however, have assumed that we have imputed to them a want of good faith. This was not our intention, and we have to express our regret should anyone have read us in this way and to withdraw the same.

* * *

ORTHOCHROMATIC PHOTOGRAPHY.—II.

Now we have seen that the most luminous part of the spectrum to the photographic retina, or sensitive salt of silver, is situate in the violet, ultra violet, and blue; and that yellow is the most luminous visually, or to the human eye. The following table will give the wave lengths of light expressed in tenth metrets = $\mu\,\mu$, or millionths of a millimetre, and the corresponding colours.*

Colour.	Wave Lengths.	Vibrations per Second, in Billions.
Infra red	Limit at about 2700·00.	111
	Y 899 04	334
	Y 898·65	334
	X_{vi} 880 61	341
	X_{iii} 866·14	346
	X_{ii} 854·18	351
	X_{i} 849·70	353
	Z 822·64	365
Visible spectrum. Red	A 759·397	395
	B 686·738	437
Limit of orange	C 656·296	457
Yellow	D_1 589·608	509
	D_2 589·013	
Green	E 527·043	569
	E 526·965	
	b_1 518·373	579
Cyan blue	F 486·143	617
Indigo	G 430·796	696
Violet	h 410·184	
	H 396·861	
Ultra violet	K 393·386	763
	L 382·056	785
	M 372·778	805
	M 372·713	
	N 358 132	838
	O 344·107	872
	O 344·069	
	P 336·130	893
	Q 328·687	913
	R 318·030	943
	S 310·077	968
	S 310·038	
	S 310·004	
	T 302·115	993
	T 302·070	
	U 294·800	1018
	U 294·777	

The letters in the second column of the above are those which designate the so-called Fraunhofer's lines.

The following table, given by Vierordt, shows the visual brightness or luminosity of the different parts of the solar spectrum. The total strength of the spectrum = 100,000.

Spectrum.	Luminosity.	Spectrum.	Luminosity.
A — α	72	D — E	478544
α — B	1592	E — F	186143
B — C	4114	F — G	39190
C — D	288957	G — H	4383

A more convenient table for our purpose is another of Vierordt's, which estimates the visual intensity or luminosity as follows:—

Red at A	= 2	Green at E	= 37
Orange at C	,, 12	Blue at F	,, 12·8
Yellow at D_1	,, 78	Dark blue at G	,, 0·8
Yellow-green at D_2	,, 100	Violet at H	,, 0·07

The two colours, however, which specially interest us are blue and yellow, it being a well-known fact that many blues and violets have such a great luminosity for the sensitive salts of silver that when photographed they are reproduced in the negative by a more or less dense deposit, and, therefore, are represented in the resultant prints as white or nearly so, whereas yellow, which is the most luminous colour to the human eye and next in order to white light, appears black. So far as we are aware, there is no table published of the photo-luminosity of the spectral colours, but Abney estimates the photo-luminosity of yellow as 10 and that of violet as 1,000. The desire of making the visual and photo luminosities agree was, as we have already seen, attempted to be satisfied as early as 1858 by Crookes. The actual discovery and method of doing this will be given in our next article.

* * *

Letters to the Editor.

PHOTOGRAPHIC CONVENTION, UNITED KINGDOM—PLYMOUTH MEETING, JULY 3RD, 1893.

Sir,—May I ask you to give prominence in your paper to the fact that the circulating set of slides, issued by the Devon and Cornwall Camera Club in connection with the forthcoming meeting of the Convention, has been lost in transit.

As I cannot recover any trace of them to the present, I am reluctantly compelled to provisionally cancel their engagements, but will put them on the road again as soon as I recover them, and will arrange fresh dates for those societies that have been disappointed.

To the present I have absolutely no information as to their whereabouts, and can only express my regret to all who have been disappointed.—Yours truly, R. Hansford Worth
(Hon. Loc. Sec.).

* * * *

PROPOSED HAND-CAMERA CLUB.

Sir,—Will you kindly allow me to propose through your columns the formation of a hand camera club. I consider the time quite ripe for such a movement, and it must be admitted that the hand-camera receives but slight attention in the routine of ordinary society work. This must of necessity be so, as it only forms one branch of many. Yet I venture to think that the earnest hand camera worker would like greater opportunity of discussing and hearing about hand-cameras. Several well-known workers to whom I have mooted the idea think favourably of it, and I now ask anyone interested to communicate with me direct. The proposed lines would be:—

1. A nominal subscription, say about 2s. 6d.
2. Conducted on social lines like the Photographic Club.
3. Confined strictly to actual workers, but no other restrictions.
4. Meetings monthly at first.
5. Comparing results, discussions upon new apparatus, and in fact the usual kind of society show, but confined to work.
6. Some system perhaps of a circulating portfolio to keep in touch with provincial members.
7. Some of the meetings perhaps in the provinces. And, of course, there are other matters.

If the idea meets with any kind of support, I shall be pleased to call a meeting.—Faithfully yours, Walter D. Welford.
57 and 58, Chancery Lane, London, W.C.

---

* Eder, "Ausfuhrliches Handbuch der Photographie," vol. i. p. 201, 1890.

"A PRIZE TO EVERY COMPETITOR."

SIR,—May I be permitted to state that the Croydon Camera Club have only placed *six* prizes at the disposal of the judges, viz., four medals and two other articles.

In order that all the *members* of the club may have every opportunity of familiarising themselves with what the judges think is the best picture in the chief competition class, it has been resolved to send them each a Woodburygravure copy of the work obtaining the award, not by way of prize, for only about ten per cent. of the members have works entered in this particular class, but by way of education.

A copy of the winning print will also be sent to those competitors in this one class who do not happen to be members of the club.

The above is, I presume, the foundation for your "anonymous correspondent's" assertion that "a prize to every competitor" will be given by our executive. He might as well call a catalogue or card of admission, both of which are usually sent to exhibitors, as "a prize to every competitor."

Allow me, in conclusion, to thank you for the aid you have given us in making our exhibition as successful as it seems likely at the moment of writing to be.—Yours truly, HECTOR MACLEAN.

Reviews.

The "Blue Book" of Amateur Photographers. British Societies. Edited and published by Walter Sprange, Church Court, Clement's Lane, E.C. Price 5s.

Certainly this cannot be said to be a work of absorbing interest or one likely to induce even the most enthusiastic devotee of photography to burn the midnight oil over. It is, as its name implies, an attempt to compile a directory of amateur photographers, and certainly is successful so far as regards the membership of the leading photographic societies and clubs. No doubt the work will be useful for those wishing to circularise amateurs; to the average photographer we are afraid it will be but little use.

Dictionnaire Pratique de Chimie Photographique. By H. M. Fourtier. Published by Gauthier-Villars et Fils, 55, Quai des Grands Augustins, Paris. Price 8fr.

A well-compiled book of reference, containing not only the chief chemical properties, the method of manufacture, but also the photographic applications of the various chemicals with a well-known formula, where such can be introduced. Chapters upon qualitative and quantitative analysis are included, and descriptions of the leading photographic operations. The book is very complete and yet contains no unnecessary matter.

Litmus.

BY J. F.

CERTAIN colourless constituents of various species of lichen (*Roccella*), when treated with alkalies in presence of air, undergo a kind of fermentation, one of the products of which is the active colouring matter of litmus. As found in commerce, litmus is a complex body, and is invariably alkaline to a marked degree. The sensitive colouring principle is supposed to be an acid existing as a potassium salt, and has the peculiar property of changing colour from blue to red when rendered acid. It is on this account that litmus is used as an indicator of acidity and alkalinity.

The colouring matter is extracted from litmus by cold water, but, as noted above, litmus contains much alkaline matter, and the extract must be treated with acid so as to produce a delicate indicator. A drop of the alkaline liquor placed on a white plate, and a drop of a faintly acid solution brought into contact with it, the alkalinity of the litmus drop overcomes the acidity of the drop to be tested, and so fails to indicate the condition of the solution. To the aqueous extract dilute nitric or sulphuric acid should be added until the litmus assumes a distinct wine-red colour, which indicates neutrality; blue litmus or red litmus is then readily obtained by the addition of a drop or two of caustic potash solution or dilute acid.

As an indicator, litmus may be used either in solution—a drop of the liquid to be tested being brought into contact with a drop of litmus solution on a white plate, or by paper, prepared by dipping strips of thin white blotting paper into litmus solution and hanging up to dry. The tint of the reagent may be blue, red, or purple, *i.e.*, alkaline, acid, or neutral. The purplish tint is perhaps the most convenient, as it indicates at once the condition of any liquid with which it is brought into contact, while blue litmus retains its colour in both alkaline and neutral solutions, and red litmus retains its colour in both acid and neutral solutions.

Solution of litmus should be kept in a bottle having a loosely-fitting cap, or a cork carrying a longitudinal slit, to allow access of air.

An Up-to-Date Ballad.

BY GRAHAM HARVEY.

WHO, many tricks would do and dare,
Did spoil my plates and make me swear,
Until I wondered as to where
I'd go?—
My camera.

Who'd (whilst I'd watch it) firmly stand
And rear its head so proud and grand
But d'rectly I withdrew my hand
Would fall?—
My tripod.

Who held my plates in compact tight,
And sometimes put me in a fright,
By letting in the bally light?
O hang!—
My dark slide.

Who, when I'd try a good snapshot,
Would turn me cold—more often hot—
By running slow—and spoil the lot
Of films?—
My shutter.

What keeps me from my fav'rite art,
My outfit and my travelling cart,
Why, can't you see? Nay, do not start,
For 'tis—
The madhouse.

* * *

"**On** the Application of Photography to Seismology and Volcanic Phenomena" is the title of a pamphlet by W. K. Burton, which treats of the subject very thoroughly.

The Duke of Newcastle is to be accompanied by Mr. Gambier Bolton, F.R.G.S., in his tour around the world, and as they are taking a regular battery of cameras (about eight all told, with sixteen lenses), we shall expect to see some good results on their return.

Amidol-Hydroquinone Developer for Lantern Slides.—The following amidol-hydroquinone developer is recommended for making very clear lantern slides with plenty of intensity. They can be kept in the developer as long as three hours without the whites being affected:—

(*A*) *Stock.*

Amidol	20 gr.
Sulphite soda	80 ,,
Water (distilled)	8 oz.

(*B*) *Stock.*

Hydroquinone	30 gr.
Sulphite soda	120 ,,
Water	3 oz.

(*C.*)

Saturated solution of sulphite soda.

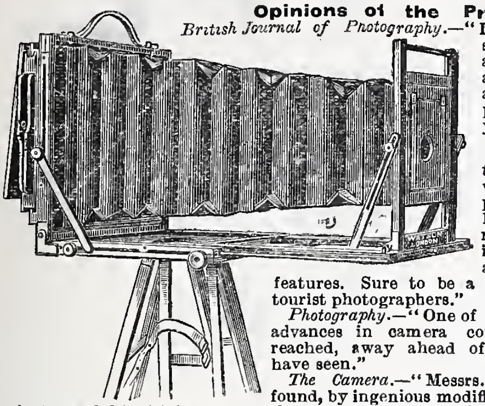
For lantern slides:—

A	1 oz.
B	$\frac{1}{16}$,,
Water	1 to $1\frac{1}{4}$,,

The slides do not want to be pushed too much; let them have time. Should the development be long, or the exposure very short, add 10 to 30 drops at a time of C.—*Photo. American.*

W. WATSON & SONS, 313, High Holborn, London.

WATSON'S "ACME" CAMERAS



Opinions of the Press.

British Journal of Photography.—"It folds into a smaller compass, and is lighter and more portable than any pattern we have yet seen."

Amateur Photographer.—"A wonderful, compact, and fairy-like instrument, exhibiting several new and important features. Sure to be a favourite with tourist photographers."

Photography.—"One of the greatest advances in camera construction yet reached, away ahead of anything we have seen."

The Camera.—"Messrs. Watson have found, by ingenious modifications, how to make the weight still lighter, and the rigid still more firm."

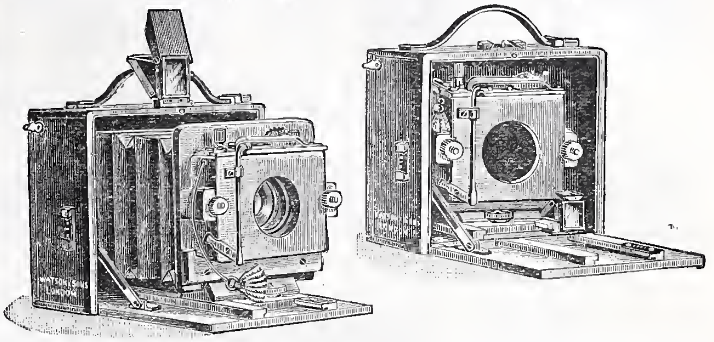
English Mechanic.—"For portability and compactness, combined with practical utility, this Camera may fairly be said to take the lead, and to be deserving of the title 'Acme.'"

W. W. & S. have the largest stock of Photographic Instruments held by any House in Europe.

Cameras and Lenses in all patterns and sizes from ¼-plate to 24 by 20, ready for immediate delivery, and being actual manufacturers, there is no middle profit to pay, and the very fullest value for cost is given in all their Instruments.

A Fully Illustrated and Descriptive CATALOGUE of Cameras, Lenses, and every Accessory Apparatus and Material requisite in Photography sent post free to any address on application.

THE "ALPHA" HAND CAMERA



Made in box form, of sufficient size to contain, when closed, the Bellows, Front, Lens Shutter, and Finder. The front of the box falls down, and is held rigid and horizontal by a strut; the Camera is then extended along it to focus, a Scale of Distances is marked, but a ground glass is provided and can be used if desired. The Camera may be supplied complete, or alone, or fitted to any suitable Dark Slides, Lens, and Shutter.

Made in Three Sizes	¼	5 by 4	½ plate
Prices of Cameras without Slides	£1 10	£1 15	£2 10

COMPLETE OUTFITS.

	¼			5 by 4			½ plate.		
	£	s.	d.	£	s.	d.	£	s.	d.
Camera and 3 Double Slides	3	15	0	4	6	0	5	10	0
Watson's Rapid Rectilinear Lens, with Iris Diaphragm	2	17	6	3	2	6	4	0	0
Exposure Shutter...	1	0	0	1	0	0	1	0	0
Finder	0	10	6	0	10	6	0	10	6
Travelling Case ...	0	12	0	0	15	0	1	0	[illegible]
	8	15	0	9	14	0	12	0	6

	¼			5 by 4			½ plate.		
	£	s.	d.	£	s.	d.	£	s.	d.
Camera & 1 Double Slide	2	5	0	2	12	0	3	10	0
Selected Continental Rectilinear Lens	1	10	0	1	10	0	2	5	0
Exposure Shutter...	1	0	0	1	0	0	1	0	0
Finder	0	10	6	0	10	6	0	10	6
ravelling Case ...	0	7	6	0	9	6	0	12	6
	5	13	0	6	2	0	7	18	0

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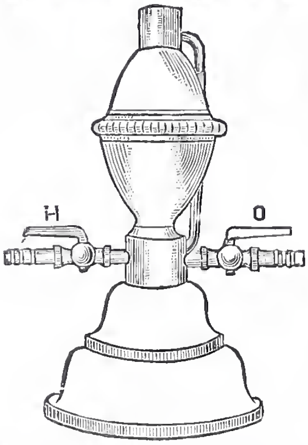

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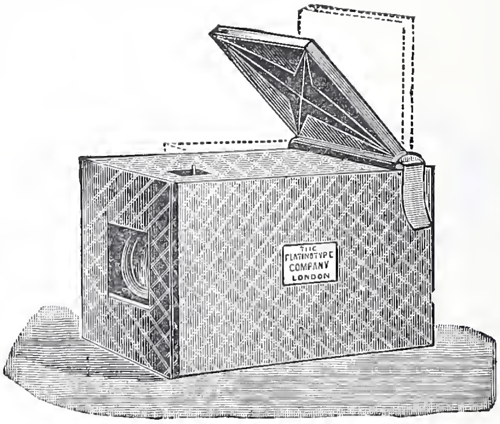

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Simplest and Best Hand Camera made. Measures only 8 x $4\frac{3}{4}$ x 4 ins.

PRICE, Quarter-plate, £7 7s., with 6 Double-key Slides.
Ditto ditto 2nd Quality, £5, with 3 ditto ditto.

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Photographic Procedure.

By E. J. Wall,

Author of "The Dictionary of Photography."

Section VI.

DEVELOPERS AND DEVELOPMENT.

(*Continued from page* 211.)

Hydroquinone.—This has been termed "the amateur's developer." Certainly it was received with open arms by nearly all classes of amateurs, and numberless have been the formulæ suggested for it. To some extent the great rage for it has died out, some workers finding it not quite so easy to modify as the old friend pyro, others abandoning it for the new comers eikonogen, amidol, etc. The introduction of hydroquinone gave rise to a particular class of developer—the one-solution developer—which has found numerous friends, but certainly there is not, nor can there be, quite such command over development as with two solutions. One-solution developers have their uses, however, for tourist work; when a test plate may be developed they are convenient, taking up considerably less bulk than the ordinary kind.

Personally, I have one objection to hydroquinone, which, notwithstanding all that has been said in its favour and against my opinion, I still hold, and that is, that hydroquinone requires far more intimate knowledge to work properly than pyro, and for this reason I don't consider it such a suitable developer for ordinary negative work, nor is it a developer to place in the hands of a beginner, because of the tendency to hardness to which it is liable. On the other hand, I will admit that a tyro is far less likely to fog his plates by it than with pyro.

Hydroquinone developers may be classed into two divisions—those containing caustic alkalis and those with carbonates of the alkalis. We shall proceed to consider these two kinds of developers.

Ammonia can be used with this agent as an accelerator, but the results are not such as recommend its use.

In England the majority of workers use caustic alkali, but on the Continent the carbonates are rather more in favour. Caustic potash or soda are rather more liable to cause a peculiar grey surface fog with rapid plates than the carbonates, and frilling of the film is far more likely to occur. I think that the carbonates are to be preferred, as in cases of under-exposure one may use a caustic alkali as an accelerator if desired. Of the two alkalis, potash and soda, the former is the more energetic.

One-solution Caustic Developers.—Of these the best I have found to be the following, but the author of the same I do not know:—

Water	10 oz.
Sodium sulphite	4 „
Hydroquinone	200 gr.
Caustic potash	200 „
Potassium ferrocyanide	120 „

Dissolve in the above order. For time exposures, dilute with an equal quantity of water; for over-exposure, use an old developer or add five drops of 60 per cent. solution of bromide to every ounce of diluted developer. For under-exposure, use full strength.

Balagny's Developer.—This, suggested by M. Balagny, has found considerable favour in France and is made as follows:—

Water	900 parts
Sodium sulphite	75 „
Hydroquinone	10 „
Carbonate of soda	150 „

Dissolve in the above order. For over-exposure add an equal quantity of water and five drops of acetic acid. For under-exposure use the strong developer.

Two-Solution Developers.—Of these the best containing caustics I think are those recommended by Lainer (*Phot. Corresp.*, January, 1892), which I give in tabular form with his notes:—

	1	2	3	4	5	
A.						
Water	600	900	950	1,000	550	parts
Hydroquinone	10	10	10	10	10	„
Neutral sodium sulphite	25	40	30	35	35	„
Potassium ferrocyanide	—	120	90	25	25	„
B.						
Potassium hydrate ..	50	50	—	50	—	„
Sodium	—	—	30	—	60	„
Water	100	100	90	550	550	„

Developer 1: 60 parts of A and 3 parts B brought out a sensitometer image in three-quarters of a minute to 24 deg.; but it is apt to produce fog with some plates. The addition of about 12 per cent. of potassium ferrocyanide has a very beneficial effect.

Developer 2: 60 parts of A and 6 parts B permits exposures to be shortened (?), gives excellent details in the shadows, and allows very rapid development.

Developer 3: 60 parts of A and 12 parts B gives negatives of a softer character than those given by developer 2.

Developer 4 is a slower developer: 60 parts of A mixed with from 6 to 9 parts of B are diluted with 60 parts water.

Developer 5: mix in equal parts; it resembles No. 4 in action.

Hydroquinone with Carbonates.—Of the two alkaline carbonates potash and soda, the former acts more energetically, whilst soda gives rather softer results.

Eder and Lenhard's Potash Developer.—

1.	
Hydroquinone	10 parts.
Sodium sulphite	40 „
Distilled water	400 „
2.	
Potassium carbonate	20 „
Distilled water	200 „

For use mix two parts of No. 1 with one part of No. 2.

Hydroquinone and Soda Developer.—

1.	
Hydroquinone	10 parts
Sodium sulphite	40 „
Distilled water	400 „
2.	
Carbonate of soda (pure crystal)	1 part
Distilled water	8 parts

For use mix two parts of No. 1 with one part of No. 2.

The following notes refer to both the above developers. For over-exposure add about five drops of acetic acid or ten per cent. solution of bromide of potash to every ounce of mixed developer. The former is to be preferred, I think, as it does not seem to increase the contrasts so enormously as the bromide. For under-exposure, to every ounce add a few drops of ten per cent. solution of the caustic alkali, potash or soda, whichever is being used. It is curious to note that any normal increase or decrease of the hydrokinone solution has but little effect; for instance, if we use equal parts of the above solutions, but little change is effected in the final result; the more hydrokinone there is within reason, the more delicate the details and modelling in the high lights, whilst increase of the alkali produces quicker development and rather more contrast. As I have stated before, the failing of hydrokinone is the too great contrast; in fact, in developing plates exposed behind the tablet number of Warnerke's sensitometer the higher numbers have a dense deposit with little or but very slight difference, and then a sudden drop is to be noted, which from the particular colour of the deposit allows these lower numbers to print far more in proportion to the high ones. To avoid this exaggeration of contrast the accelerator should be lessened somewhat, or rather the hydrokinone increased, and the developer diluted with an equal quantity of water. Ferrocyanide of potassium added to the developer also prevents too great contrast, and about sixty drops of ten per cent. solution of this salt may be added to every ounce of developer.

Many rapid plates when fresh developer is applied to them, immediately become covered with a grey fog, which may be avoided by using old developer first or adding acetic acid to the developer.

General and Photographic Chemistry.—XVI.

BY E. C. CONRAD, F.C.S.

THE NON-METALLIC ELEMENTS AND THEIR COMPOUNDS.

(*Continued from page* 161.)

THE ALCOHOLS.

Methyl Alcohol.—Syn.: Carbinol, wood spirit, etc., CH_3HO. M.: By distilling methyl chloride with potash. Eq.: $CH_3Cl + KHO = CH_3HO + KCl$. The commercial variety is prepared by the destructive distillation of wood. The product of crude wood vinegar is again distilled, and the first portion to pass over is collected separately. It is a brown, strong-smelling inflammable liquid consisting of methyl alcohol mixed with acetone, acetates, oils, and fats. This impure spirit is frequently called *wood naphtha*, and can be purified by neutralising with lime and redistilled. P.: Pure methylic alcohol is a colourless liquid with a taste and smell resembling spirits of wine. At 20° C its S.G. is 0·798, and it boils at 66° C. It burns with a pale blue flame without smoke or soot, and mixes with water in all proportions. U.: The crude spirit is used in the manufacture of methylated. It dissolves resins, etc. U. P.: For drying negatives quickly and to preserve pyro.

Ethyl Alcohol.—Syn.: Alcohol, spirits of wine, C_2H_5HO. M.: By fermentation; thus, if a warm solution of sugar is mixed with such substances as blood, white of egg, yeast, etc., a process of decomposition takes place, in which carbonic acid is given off and alcohol formed. In germination the starch contained in plants is converted into sugar by the action of a ferment produced in the seed. The malting of grain brings about this change by the application of heat. The spirit obtained by fermentation is very dilute, but it can be separated from most of the water by distillation, although the removal of the last portion of water is a matter of great difficulty. Ethylic alcohol can also be prepared from ethene, ethyl chloride, etc. P.: The pure spirit is a colourless liquid, with a strong ethereal smell and a burning taste. At 15° C. its S.G. is 0·793, it boils at 78° C. and has never been frozen. It burns with a pale blue flame without soot. Ethyl alcohol has a strong affinity for water with which it mixes in all proportions. Its uses in the arts are the same as those already given under methyl alcohol, and for most purposes a mixture of these alcohols can be used. The following are some of the commercial varieties in which ethyl alcohol occurs:—

Absolute alcohol generally contains two or three per cent. of water, S.G. 0·80.

Rectified spirits of wine, containing 13 per cent. of water, being 56° over proof, S.G. 0·835.

Proof spirit containing $49\frac{1}{4}$ per cent. of alcohol, S.G. 0 91.

Methylated spirit containing 90 per cent. rectified spirit, and 10 per cent. wood naphtha. This mixture being undrinkable escapes the high duty charged on the other varieties.

The proportions of ethyl alcohol contained in some well-known beverages are—Beer, about 10 per cent. of alcohol; wine, from 12 to 25 per cent.; spirits, from 40 to 50 per cent.

The different flavours of these products are mainly due to the presence of small quantities of essential oils and compound ethers either present in the grain or in the various substances added. Small quantities of some other alcohols are often present, of which the most important is amyl alcohol or "fusel oil."

Amyl Alcohol.—Syn.: Isobutyl carbinol, fusel oil. Oc.: In the manufacture of brandy from potatoes, corn or grape must, also in the manufacture of whiskey, hollands, etc. M.: The amyl can be separated from the ethyl alcohol also produced in the above processes by fractional distillation, being contained in the portion passing over between 128° and 132° C. P.: Amyl alcohol is an oily, colourless liquid, with a peculiar odour and acrid burning taste. At 0° C. its S.G. is 0·825, and it boils at 130° C. Amyl alcohol is insoluble in water, but readily dissolves in alcohol, ether, etc. There are eight different alcohols having the above general formula.

Glycerine.—Propenyl alcohol, $C_3H_8O_3$. This alcohol in combination with certain fatty acids forms natural fats such as olive and palm oils, mutton suet, etc. When any of these neutral fats are heated with the caustic alkalies and some oxides, a combination of the metal with the acid takes place producing bodies called *soaps* with the separation of free glycerine; this reaction is termed saponification (soap forming). M.: (1) By heating stearin (the main constituent of mutton suet) with caustic potash. (2) By heating olive oil with lead oxide. It has been found that glycerine can be obtained quite pure by decomposing the fat with superheated steam. (3) Palm oil, decomposed by steam at a high temperature.

* * *

Hamilton Free St. John's Literary Association.—On 16th ult., the President, Councillor Keith, in the chair, the Secretary Mr. R. H. Michie, delivered a lecture on "Some Processes and Experiments in Photography." The lecture was illustrated with lantern slides illustrating the various topics which came up for consideration. During the evening a flash-light portrait was taken of the chairman, A transparency was subsequently made and projected on the screen —the result speaking a favourable word for the Todd-Forret flash-lamp. AMATEUR PHOTOGRAPHER Competition prints, kindly loaned by the Editor, were on exhibition in an adjacent room, and were very much admired by a goodly turn-out of members and friends.

On the 18th ult. the North Middlesex Photographic Society held their annual dinner at Beales's Restaurant, Holloway Road. Mr. Debenham proposed the toast of the society, and Colonel Gale responded for the judges and presented the successful members with their certificates, Mr. E. J. Wall responding for the press. This was made the occasion of presenting the late Hon. Sec., Mr. J. McIntosh, with a handsome gold watch as a mark of esteem and appreciation of his services.

The Relation of Art to Photography.

In choosing the above subject on which to address you this evening it was not my intention to raise a debate as to whether photography should be granted a place amongst the fine arts, as I am content to leave that to abler pens than mine, but to show how some of the simpler rules of art recognised by all of the world's greatest painters may be of use to photographers in the composition of their pictures, and to this I intend in a great measure to adhere; but as I think in such a paper the subject should hardly be passed over without some mention being made with regard to it, I will endeavour in as few words as possible to show you how closely photography is related to art.

In the first place we might enquire, what is art? I think one of the best definitions is that given by Mr. H. P. Robinson in his book on "Art Photography." He says: Art is interpretation by means of a creative idea, "or, in three words," "Art is selection;" and further on, "It is not the mere copying of nature that gives artistic delight, so much as the intellectual pleasure to be derived from getting the best effect out of any given materials, or adding a beauty to that which is already beautiful. It is the sense of creation which gives pleasure, and without this or something to this effect photography is not art.

Now can this definition of art be applied to photography? We have no hesitation in answering yes, and for proof take this very common illustration: Suppose you choose a given view—say some old ruins—and tell three photographers to take it for you, laying down no restrictions as to the point from which it has to be taken: will they all take it from the same spot? It is very unlikely; you will probably get a different picture from each one. When you come to analyse them, they may all be correct so far as being a literal transcript of the place, but the one taken by him who has studied some of the rules of art and is interested in getting the best possible result out of his subject will be immeasurably superior to either of the others from a pictorial point of view. Notice too the difference there is between some of the photographs of the same place now on the market done by different photographers; some are veritable little gems, and others—well, you will hardly care to accept them as a gift. And still they say that there is no power of selection in photography, that it is only capable of giving us an exact reproduction of the place, but that reproduction can be made into a picture or not according to the person who guides it; and that is the point on which the foregoing argument that photography can have no claim as an art falls to the ground.

Coming up in the train one day not so long ago with a couple of friends, one of whom had been studying for an artist, a discussion arose as to whether photography had any claims to be considered one of the fine arts. It was granted that photography pure and simple had no claim, but my friend maintained that it had no claim whatsoever, using the usual formula in such cases on the ground of its being a purely mechanical process done by means of a machine and a knowledge of the action of light when brought into combination with certain chemical substances.

In vain I pointed out that if that was so then all pictures of any place, although produced by different people, must be alike, and as this was not so, it could not be a mechanical process. My other friend, who up to now had said nothing, then ended the argument with the following—that although photography pure and simple could certainly not be considered an art, yet as soon as the individual operating began to affect the result then he thought that photography might claim to be considered an art just as much as either painting or sculpture.

It has often been argued that photography will in time destroy the art of painting, but I don't think there is any fear on that score, for we have our limitations just as painting has. We cannot produce what we do not see with the naked eye, we cannot produce works such as "The Descent from the Cross," "Ulysses and the Syrens," and many other mythological subjects, unless we make use of living models dressed up and posed so as to represent what we wish to show; and this has always a certain unreal effect, which should always be avoided, and especially so in anything photographic that is intended to be considered seriously. Neither do I see why we should endeavour to imitate engravings, etc. Photographs when critically examined never can be taken for an engraving; and why should they be? Is an engraving so much above a photograph, as a picture; they certainly do become more valuable than a photograph and that is their only advantage, for in the decoration of our homes good photographic pictures or Autotype reproductions of some of the famous paintings are immeasurably superior to a badly produced engraving or painting.

But I must leave off this discussion, interesting as it undoubtedly is, and turn to the more practical questions which I wish to speak about more particularly this evening, viz.—those rules recognised by artists in the composition of their pictures, and how they may be applied by the photographer for the improvement of his own work.

If we examine the works of the great masters during the last two or three hundred years, we find that they all follow certain forms in building up their pictures, and if we go still further back—say a thousand years, or even to the time of the ancient Grecian and Roman empires—we still find the same forms adhered to both in painting and sculpture.

These have been reduced as much as is possible to a kind of system for the guidance of students. But it must be clearly understood that rules are only intended to help in the structure of a picture and can be broken when necessary, consistent with truth, for, as Mr. G. F. Watts, R.A. says, in one of his writings, "In our seeking after truth we must endeavour never to be unreal or affected. It must not be forgotten that this endeavour after truth is to be made with materials altogether unreal and different from the object to be imitated; nothing in a picture is real. Though art must be founded on nature, art and nature are distinctly different things."

If we are shown a pretty picture in every respect, we sometimes say that it is due to the good taste of the artist, or of whoever has produced it. This is a mistake. The faculty of artistic sight does not come by nature, it is not born in a man, so to say, but is the outcome of cultivation, a special training of the sense of seeing, a study of nature combined with a study of art. But it must not be thought from the above lines that anybody can be educated to take a photograph or paint a picture; there must be something to work on in the first place, but for it to be brought to perfection it must be trained. Take a walk in any of the national picture galleries of Europe, or even in the smaller ones that abound throughout the countries: if you take any interest in the works there exposed to view you can't help but compare them one with the other, noting the chief points that strike you in each. One containing animals as the principal feature in the picture you will probably compare to some of the productions of Landseer, or an ideal landscape to Turner's, and so on. You may not think that there is anything being learnt, you look upon it as a usual thing in inspecting pictures, and do it as a matter of course, but still there is a certain amount of new information being laid to heart which will assuredly bear fruit some day in one form or another; it's there whether you think it or no, and it must perform its part with or without your knowledge.

There are in our own art gallery here in Manchester two works by Sir Frederick Leighton, called "The Last Watch of Hero," and "Captive Andromache." Who can look on either of these without being taken out of oneself as it were? In the one the central figure stands out alone from all the others, its downcast attitude and sombre colouring contrasted with some of the other merry groups—all go to tell the story, and a feeling of sadness for the unfortunate captive comes over you and a thankfulness that your lot is cast in happier times. And how much more in the other? Who can look on the strained, tearful expression on the face of Hero as she tries to pierce the horizon, while below lies him for whom she will look in vain. It is by the careful study of such pictures as these and others of a lighter nature as the "Village Wedding," etc., that our ideals may be raised, and, unconfined by conventional fetters, guided by a knowledge of the technicalities of art, we shall be enabled to detect in our study of nature those beauties that others pass by without notice.

Walking along our country lanes or by the seaside, what beautiful cloud effects can be seen by those who look for them! And these are subjects that are quite within the reach of photography.

We must now consider some of the chief rules that are used in the construction or building up of a picture, but I must ask you to bear in mind what I have said before with regard to them.

First there is the composition of the picture; and of this, Ruskin says, "The great object of composition is to always secure unity. The first mode in which this can be effected is, by determining that one feature shall be more important than all the rest, and that the others shall be grouped with it in subordinate positions."

A great feature in the composition of a picture is the point of sight from which it is taken. For instance, if you take a view looking down a street, at the end of which is a church steeple, if that view is taken from the centre of the street at equal distance from each side, you will not get an artistic picture at all, but if you move the camera a few feet to either the right or left a very much more artistic result will be obtained than in the other case.

Another fact in the composition of a picture is chiaroscuro or the arrangement of light and shade, and a very important one it is, for an indifferent subject may be made into a most picturesque one by the study of the different effects caused by light and the seizure of that moment when it is at its best. It has been proved that chiaroscuro, with hardly any detail, can make a picture, but I intend treating of this later on in my paper.

There should also be complete unity between the several parts of a picture. Nothing should seem out of place or superfluous; very often we come across pictures in which misplaced or ill-chosen figures utterly destroy their unity. Scattered lights and shades will produce the same effect.

Balance and contrast—this is the most important of all the rules laid down for our guidance in the composition of a picture, for without balance no effect of light and shade can save it; every line must be compensated by other lines, or the picture will seem about to fall to pieces.

I have here one or two rough sketches showing what is meant by balance, and also a reproduction in chromo of one of Birket Foster's studies. The principal group or subject of the picture is a little to the right of the centre, the little girl on the extreme right is balanced by the lad on the left, and are occupied in the same way as the principal group but only in a subordinate manner; similarly the tree on the right is compensated by the small tree on the left.

Turner's works are also very good examples of the importance of balance. In this autotype reproduction of that picture of the famous old ship, "The Fighting Temeraire," the buoy on the right-hand corner forms the balancing point, and if we place one finger over it so as to blot it, out there seems to be something wanting, and the stately old ship and her puffing consort seem as if they were floating on a sea having no foundation.

Most pictures are built upon diagonal or pyramidal lines, and as these lines always require compensating lines in one way or another, it has been said, why not use the horizontal and vertical lines only? Now this would never do, for it would give us a series of squares, and nature never does compose in squares; every line is broken up in some way. The horizontal line of the sea is broken by the lines of the waves and the clouds, and that of the land by trees and mountains.

Closely connected with the balance of lines is contrast; a great deal depends upon the management of light and shade so as to get the greatest effect of which our subject is capable.

If we examine any of the works of our greatest painters we can't help but notice that the darkest part is usually opposed to the lightest; by this means greater contrasts are produced and full value given to the high lights.

Cuyp invariably followed this rule, as likewise did Turner, and a great deal in the success of his pictures is due to his splendid management of light and shade. It does not always follow that the darkest part must consist of one object. It may be a group of figures or trees, etc., but a spot of dark judiciously placed in the foreground of a picture gives a truer value to both the middle and furthest distance.

But it is not necessary that the darkest part should be placed in the foreground of a picture; very often we come across one where the chief interest is centred in a dark object, such as a group of trees, then you will very often find that a reversal of the above rule is the result, and a mass of light takes the place of the dark.

The chief point for a landscape photographer to look to is to secure, as far as he is able, something in the foreground to act as the keynote of the picture, and if this is impossible by the aid of nature herself, then artificial means may be resorted to.

Again, the chief point in a picture varies considerably; sometimes we find it at one side, sometimes the other, and at other times either below or above the centre, but never upon it. The worse composition that you can have is when the most important subject falls on the centre line or on that point where if lines were drawn from corner to corner the point of intersection occurs.

The unity of a picture is expressed by what is known as the law of repetition. Mr. J. Andrews, in his book on "Studies in Photography," places it as the second rule in the composition of a picture. He says, "Every principal idea, group, or combination should be repeated by some subordinate idea, group, or combination."

But we must be careful not to overdo this law of repetition, for if we have several objects very similar so that the spectator gets no idea as to what the picture is supposed to represent, the effect of unity is lost. There must be one principal object, and the others must be merely echoes of that object so as to form an harmonious whole. A good picture should always produce the impression on the spectator as to what the artist wishes to represent without any words to explain the same.

A very good illustration is that of the effect obtained by the reflection of trees, etc., in calm water, which if skilfully done expresses the feeling of repose.

Besides this there must be unity of the various lights and shadows, nothing causes more irritation than little spots of light scattered all over the picture. Very often we get this effect in nature when the light comes through the leaves and branches of trees, and is broken up into numerous parts in their progress. I have no doubt you all have noticed the irritation caused to the eyes from this cause.

I have spoken before of the sky being able to either make or mar a good picture, and I intend now to go more fully into that part of my subject.

It has always been acknowledged that a photograph of a landscape with plain white paper for the sky looks bad and does not add any beauty to the picture, in fact it is unnatural, lacking both the beauty and truth of nature.

As I write I have before me on the wall, a photograph taken by myself about two years ago; the subject is the old mill and bridge at Beddgelert. Most of you will very likely know the place. In the far distance the clouds are rolling across the picture in heavy masses burying the tops of the Snowdon range in a misty outline, and casting a gloom over the whole picture, giving you the feeling that it was taken on a stormy day.

Now suppose the clouds were taken away and a plain white sky substituted, the outline of the mountains standing out against the white sky; to my mind if such was the case half the interest in the picture would disappear, or if light fleecy clouds were added such as we often see on a summer's day, the effect would be nearly as bad, for they would not coincide with the gloom that seems to pervade the other part of the picture.

How often on a summer's evening with the sun setting away in the west, the land bathed in a half light, not a breath of wind disturbs the air; you can hear the sound of the distant bell far away, the sun gradually fades out of sight in a bank of clouds from which appear arrows of light shooting up into the sky and casting their reflections over the earth.

I shall never forget one such sunset. A friend and myself had gone down to Llangollen for the August Bank Holiday, and on the Sunday evening. We decided to ascend Moel Geraint and see the sunset over Snowdon, we were late in leaving, and not knowing the way had continually to examine the map that we had taken the precaution to bring with us, so that we arrived at the top in a fairly exhausted condition. But what a sight met our eyes. Away in the distance was the sun like a ball of fire, just sinking behind the crest of Snowdon, over which hung those heavy black clouds that indicate stormy weather, down in the valley everything was bathed in a subdued light, and you could see the twinkle of lights appear; but no words of mine can describe it. We left it to descend, feeling the effect of that Almighty power that could do such things, and regretting that we were not able to produce, with the imperfect means at our disposal, a hundredth part of the scene we had just witnessed.

Here I might mention another little incident that shows the mistake of letting an opportunity pass. Your esteemed Hon. Treasurer and myself went down to Llanberis last Whit-week to see what we could pick up in the way of photographs. On the evening of our arrival, after a good tea we sauntered out to have a look round and landed by Dolbardan Castle. There was a splendid sunset over the lakes, casting its shadow on the water in a manner that you seldom see when everything is right for a photograph. But whether we were too lazy or the tea had been too strong, whichever it was we did not return in order to get our apparatus, thinking, "Oh we shall be able to take it to-morrow evening," but no, the chance did not occur again. Moral, never miss an opportunity of securing a photograph if you are able when the subject is right, or you may regret it.

But to return. Besides being a chief factor in a photograph, the sky is the natural background to a landscape, and should be used to throw the other parts forward and to give due prominence to the principal subject, it can also be made to effect a balance of the light and shade in a picture and may also become the chief object, as in sunset views where the landscape is only considered from a secondary point of view.

It is very seldom that suitable clouds are secured on the same negative as the landscape, and although there are several methods of working in clouds, still natural ones are to be preferred. This necessitates double printing, but what photographer would object to this if his only desire was to produce the best work.

In this a certain amount of care has to be exercised in the selection of the cloud negative—(1) that the clouds are suitable for a landscape for which it is intended; (2) that they are lighted from the right side; (3) that they occupy the right place in the heavens; and it is in the last two that a photographer usually makes the mistake.

In the case of the painter, who is obliged to take more time, the study of clouds enables him to avoid these mistakes, but in the photographer's case he very often exposes and forgets, so that the only way to avoid these mistakes is by diligent study of that ever changing vapoury region that we call cloudland.

(*To be continued*).

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Process Work.—Under this title, Penrose and Co., 5, Amwell Street, E.C., are issuing a monthly four-page circular for workers in photo-mechanical processes, which is brightly written, and contains a price list of the necessary materials for all kinds of process work.

Trip from the Thames to the Clyde and Back.

By D. E. Goddard, F.R.M.S.

To those who like the sea, and want a fortnight's thorough change at the minimum expenditure, there is none like the trip I took last year from St. Katherine's Dock to the Clyde and back. The Clyde Shipping Company has a fine fleet of steam ships, the feeding on board is epicurean, and accommodation the acme of comfort.

It was my good fortune to secure a deck cabin on the finest ship of the fleet, the *Dungeness.* I took two cameras—one a quarter-plate, with six double backs (fitted into a neat mahogany box), carefully sealed, a locking arrangement so that when set for a given distance it is a fixture; a Thornton - Pickard shutter; a good 4½ in. rapid rectilinear lens by Browning, with the usual stops, together with a supply of plates.

My other camera was a neat little machine, the Frena, just put on the market by Messrs. R. and J. Beck, having a good fixed-focus lens, working at *f*/11, a shutter working at from 1-12th to 1-80th, and a magazine charged with forty Edwards' isochromatic films, lantern size. I also carried a tripod and a travelling ruby lamp. The *Dungeness* is lighted throughout by electricity; it is quite possible to cover the lamp in the state-room with a bag of two folds of ruby medium; a few squares of the same with some drawing pins will be found useful to put over the ports so as to exclude any rays from the lights on deck.

I want to sketch out as rapidly as possible the leading objects of photographic interest, and I assure my readers that should they decide on taking the same trip they will never regret it. Be careful to book the passage at least ten days before the date of sailing, and get a deck cabin if possible. To the hand-camera man it is very convenient to have his camera lying in his berth, ready at a moment's notice. It is not worth while always having it in the hand or slung over the shoulder. Going down Channel or on the open sea, it is astonishing how few ships come within effective range. If a study of sky and sea is wanted, with a vessel in the middle distance, well and good. It is no use to take a ship in full sail with a short-focus lens, unless it is pretty close in, so as to form the main point of interest in the picture, the sky and sea will then form an admirable background. It is in the docks, the rivers, and the estuaries that the camera must be carried and a magazine of films is so valuable. With this introduction, I will rapidly describe the incidents of the trip.

The good ship leaves the dock. The river is rich in tempting bits, which as a rule must be avoided till Gravesend is passed. Off Southend a fleet of oyster boats may give some splendid shots. The Downs may be brimful of interest, or not a sail may be visible. As the Channel widens from off Dover, so will the demand for the camera be less frequent. Spithead may give some good subjects, certainly they will abound between Ryde and the Needles. In going up the Southampton Water one has the chance of a snap at some big German liner off Netley. Loading and unloading at the Town Wharf, especially if horses or other animals are being taken on board, will well repay a few films. In the Solent, Hurst Castle will be too far off to be effective as a foreground object, but will serve as a good background, to a yacht or coaster. The Needles will be well worth a couple of shots. The chapter of accidents may supply a few studies between the Isle of Wight and Plymouth, where I changed plates at Mr. William Heath's, 24, George Street, who has a commodious and *safe* dark-room.

From Plymouth to the Hook Lighthouse on the Irish coast there will be little for the camera to do, unless one is lucky enough to get a fine rough sea off the Lizard, or unless the light is favourable, and circumstances bring the ship near the Longships Lighthouse and the Land's End, both of which will make fine pictures.

The Hook Light passed, the estuary of the Suir is entered. Dungannon Fort, the villages of Passage and Ballyhaik, a few old ruins, bold bluffs, foliage-clad hills, park-like meadows, coasters at anchor, or under sail, all combine to supply a charming store of negatives.

Then comes Waterford; the Quayside, with its beggars, jaunting cars, droves of oxen and pigs, the typical Irishman, with long tail-coat, and shillelagh tucked under his arm, give lots of snaps for the hand-camera. Reginald's Tower, the views from the bridge, the river with its various craft, surrounded by background of hills, offer plenty of work for the tripod. Plates can be changed at J. Carew's, 46, John's Hill. On again down the river, a straight run due east of forty or fifty miles into the Irish sea. Passing the *Coningsby* and Barrel Rock lightships, the Tuskar Lighthouse, if within range, Ailsea Craig, Holy Island, the Great and Little Cumbrae, the Isle of Arran all offer good material for work, the Estuary of the Clyde is passed through and Greenock reached. Nothing will be gained in creeping up the river, especially in the dusk of evening, so take the train to Glasgow. The Clyde can be worked on the return trip. If return tickets by the same boat have been taken, there will be two days in Glasgow. One may be given to the city, and one to a trip to Inverary and back by the *Lord of the Isles*; it will only cost 6s. 6d., and well worth the money.

Want of space prevents me from enlarging on this delightful trip. Before starting go to Messrs. G. Mason and Co., 180, Sauchiehall Street, and change plates. From the moment Greenock is left there will be no lack of good snaps; Gourock with its yachts, Kirn, Dunoon, Innellan, the Toward Light, Rothsay Bay, Rothsay, the Kyles of Bute, and the various stopping places on Loch Fyne, will give plenty of work. One hint here: when on a paddle steamer, use the broken water from the wheels as a foreground. Work aft the paddle-boxes.

On the return trip from Glasgow choose the best-lighted side of the river, and don't spare plates or films. The Clyde is rich in studies. The small passenger launches, the huge Atlantic liners, the waggon ferries, ships in every stage of building, Dumbarton Rock, Bell's monument, steam dredgers and hoppers, smart passenger boats like the *Glen Rosa*, all lend a charm to the Scottish river. Do not forget to pay a visit to Greenock Docks while waiting; some good studies may be obtained sometimes.

Belfast will be found a perfect paradise for hand-camera work. Engines and trucks on the wharf, enormous drays, the Quay with its fleet of colliers discharging coals into every conceivable description of carts, the Albert memorial, long lines of jaunting cars, and last, but not least, the "Queen's Bridge," will give greatly varied reminiscences of this fine city. Plates can be changed at Y.M.C.A. Dark-room. Belfast Lough is full of interest. The training ship, the peculiar pile lighthouses, coasters and small craft will keep the camera at work. A delightful run of 378 miles to Plymouth lies before us, deck games will give some good shots, and some groups will want to be taken.

Plymouth is a most enchanting locality for work—the docks, the harbour, the Hoe, will supply valuable negatives. The greatest treat will be to take a short trip round the Breakwater to Saltash Bridge and back. The Sound will often give some good studies. The Breakwater, with its central fort and the lighthouse, Drake's Island, the Tamar, the large number of ships of war, representing the past, the present, and the near future, will lend an interest that even Portsmouth will not supply. The village of Saltash is most picturesque, and the bridge spanning the river is well worth taking. From Plymouth only remains one other stage in the voyage—to the Thames.

The Frena I used was one of the first patterns; it has since been improved in one or two details. One important hint in manipulating it is to keep the front pointing upwards at an angle of 45 deg. when changing the film. I am bound to say that I was greatly pleased with the work done with it.

Someone may say, "What developer did you use for these snap shots?"

For the majority I used amidol, for others pyro and ammonia, pyro and the alkaline carbonates, and ferrous oxalate, and obtained satisfactory results from each. Messrs. Fuerst Brothers, who introduced amidol to the London market, tell me "that it is intended as a one-solution developer for the million." As such it fully deserves the praise they give it. Its simplicity, power of bringing out detail, the density easily obtained, together with its non-staining characteristics, have won for it in a very short period a very high position for the purpose for which it is recommended.

One thing is very essential, that the sodium sulphite in the formula must be chemically pure. The more I use amidol the greater my respect for this new developer.

The same firm also recommend another formula in which potassium meta-bisulphite is used to preserve the amidol as one solution, and sodium sulphite, sodium carbonate, and potassium bromide in another. Whether this will displace pyro and the alkaline carbonates, remains to be proved, but I very much question if any developer will ever take the lead, for all-round work, of our old friend pyro and ammonia, with potassium bromide as a restrainer.

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Aluminum Chloride.—Herr Stolze recommends aluminum chloride as a good substitute for common alum or chrome alum. The same gentleman also employs it with amidol for developing gelatino-bromide prints, in order to harden the gelatine, adding a volume of aluminum chloride, 1 to 100, equal to the volume of the developing solution. Development is thereby slowed, but more detail is said to be obtained, and the prints after development will stand a comparatively high temperature of the washing water—higher, in fact, than if aluminum had not been employed.—*Photo-American, January*, 1893.

The A B C of the Lantern.

Choreutoscope, The. This is a device by means of which dancing figures may appear on the screen, and there are two principal kinds, the band and the wheel. In the first the figures are painted on a long sheet of glass in the various attitudes, and they are caused to take one another's places by means of a handle working a cogged wheel, which engages with a species of rack in the wood-mounting of the glass. In the wheel variety, the figure, in six different positions, is painted on a circular plate of glass, which is revolved by a gut or string band working on a wheel.

Chromatropes. Almost everybody knows what these are, and photographers are rather apt to look upon them with contempt; but we must confess that with good designs and well-made slides we have spent many a half-hour watching the various changes which are to be obtained by the aid of these. Briefly, they may be described as combinations of two discs of glass, painted in geometrical designs with brilliant colours, which, turning in opposite directions, give gorgeous-coloured effects due to the persistence of vision. We reproduce two designs which have been, so to speak, picked to pieces and their secrets exposed.

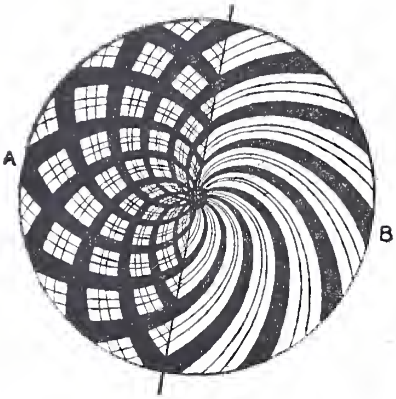

FIG. 13.

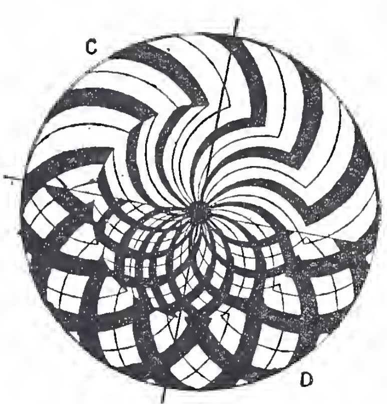

FIG. 14.

In fig. 13, B is a simple design painted on the two discs, and which, turning in opposite directions, gives the complete chromatrope A. In fig. 14, the designs for four discs are represented for the sake of space. If the two discs be painted as C, we get the effect shown below it or discontinuous; whereas if they be painted as in the quarter on the right of C, we get the effect shown in D. Chromatropes are by no means difficult to make, but it is necessary to have a little piece of apparatus called a tournette, which is not difficult to make at home, and which is shown in fig. 15.

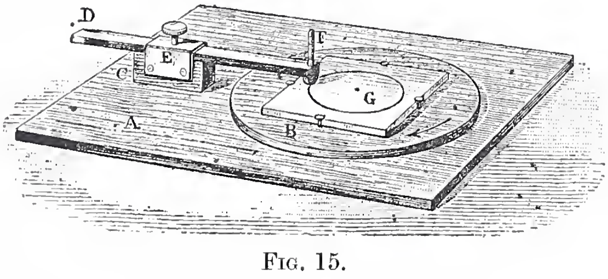

FIG. 15.

A is a piece of wood measuring about 12 by 24 by 1 in., which may be of mahogany or any other wood; a small drawing-board will do. B is a circular plate of wood, about 8 in. in diameter and from $\frac{1}{2}$ to $\frac{3}{4}$ in. in thickness, which revolves smoothly on a pivot C. Care must be taken that this works smoothly and evenly, without wobbling; this is very important. C is a block of wood permanently attached to the board A, by screws from underneath; on top of the block C is mounted a brass frame of the shape shown, of such a thickness as to allow of its being tapped with a screw-thread, in which works the milled screw E. D is an arm of hard wood, which slides under the brass strip, and can be fixed in any position by the screw E; this arm is perforated at one end by a hole, through which can be passed a glazier's or writer's diamond. To make a chromatrope disc we obtain a square of glass of about 4 in. diameter, find the centre of it by drawing two diagonals with a piece of pointed French chalk, as used by tailors; make the centre of the glass coincide with G, the centre of the circular plate of wood, and fix the glass in this position by driving in a large drawing pin on each side. By slightly pressing on the diamond and revolving the wooden disc B, it will be possible to cut the glass into a circle, and all chromatropes are painted on $3\frac{1}{4}$ or 3 in. circles of glass. Having cut the glass the next thing is to paint it, and the tournette may also be used for this. Having the design sketched out in black and white on a piece of paper, it should be placed on the revolving table, so that the centres coincide. Over the design is placed the disc of glass, so that the centre coincide with one of the points on the circumference at which the lines in the design end. By now replacing the diamond with a sable brush charged with pencil and revolving the wooden disc, lines will be painted on the glass, thicker or thinner according to the amount of pressure on the brush. A slight shifting of the glass will enable the design to be copied with great accuracy.

The painted discs of glass are now mounted in brass frames, the inner sides of which are toothed on the sides; these toothed sides are now mounted face to face, with just sufficient room to allow of a toothed pinion actuated by a handle to work in between. It is obvious that on revolving the pinion the two discs will work in opposite directions and give the required effect.

(*To be continued.*) 266

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The Reflectograph.—Mr. J. E. Blackmore has made application in Washington for patents to cover a new invention called the "Reflectograph." It is a machine so constructed that it can be used where any ordinary hand-camera is used, but instead of making a single picture of a certain view or object, it records every movement of any object before it, and by a very simple arrangement. The pictures are taken on an endless belt which moves automatically with the shutter that causes the exposures to be made at a very rapid rate.—*Photo Times*, January 20th, 1893.

A Meteor Photographed.—Mr. John E. Lewis, of Ansonia, exhibited at a meeting of the Connecticut Academy of Arts and Sciences in New Haven, on the 18th of January, a photograph of a meteor. The path of the meteor in the photograph was shown in a bright, clear-cut, almost straight diagonal line (about the breadth of the mark of a lead pencil) running across the plate. The line reaches across about eighteen degrees of the heavens. Where it enters the field, however, the line shows minute variations, indicating irregularities in the amount of the meteor's light. Professor Newton, of Yale, spoke of the extreme scientific value of the photograph, saying that while astronomical photography has shown a few light lines which may or may not have been meteoric, nothing to compare in value with Mr. Lewis's plate has yet been made. The meteor's path in the plate is clearly marked out across the stars in Andromeda, and its intensity is indicated by the fact that at every point it appears brighter than any of the stars, which were subject to an exposure of thirty-three minutes.—*Photo Times, January 27th,* 1892.

On the Theory and Practice of Intensification.[*]

By J. H. Baldock, F.C.S.

Either from under-development, or from the exposure not having been sufficiently prolonged (or it may be from other causes), a negative is sometimes found not to have sufficient density for printing purposes.

Due regard must, however, be had as to the final use to which the negative is going to be put; thus, for all kinds of paper printing, *e.g.*, albumen, gelatino-chloride, or platinum, a strong negative would probably yield the best result; but for enlarging, bromide work, and lantern slides, a weaker negative would possibly prove more satisfactory.

When it has been decided to resort to the intensification of a negative, certain preliminary processes are essential, *i.e.*:—

1.—All trace of hypo must be absolutely removed; very thorough washing, followed, if there is any doubt, by immersion in—

(*a*) Peroxide of hydrogen, 2 drams of the 10 vol. solution to five ounces of water. Soak for half an hour, and then wash.

(*b*) Alum solution, freshly made, and acidulated with hydrochloric acid (about half an ounce to a pint of saturated solution of alum). The acidification is desirable, not only to assist in decomposing the hypo, but to keep the gelatine soft, as alum alone hardens the film, and renders the subsequent removal of the soluble matter difficult. Soak for half an hour, and then thoroughly wash.

(*c*) Iodine solution, made by dissolving iodine in a strong solution of potassium iodide till it is of a black colour, adding some of this to water till of a sherry colour, and immersing the plates. When a blue colour is persistent, all the hypo is gone, and the plate is then rinsed, treated with sodium sulphite to remove excess of iodine, and then washed. The absence of hypo may be proved by testing the washing water from time to time either with iodide of starch, which has its blue colour destroyed if hypo is still present, or with potassium permanganate, which has its beautiful pink colour destroyed and manganese oxide precipitated by hypo.

2.—Any trace of fog or veil must be carefully removed, because it must not be forgotten that any such fog or veil would be intensified too, a result not to be by any means desired. This is best removed by the careful application of a reducer, and possibly the hypo and ferricyanide of Howard Farmer is the best, care being taken to thoroughly eliminate the hypo.

3.—The negative must be soaked in water for half-an-hour if it has become dry, because it should be thoroughly and uniformly wet to ensure success.

Thus it will be seen that a certain amount of work has to be done before intensification proper is commenced. This preliminary work is, we are afraid, often neglected; in many cases we know it is so, with the usual result that the process itself is condemned, while the real fault lies with the operator.

We will now assume that the negative is ready for the actual intensifying processes, of which we have a considerable number to choose from; and in this connection it is instructive and amusing to note how one process is strongly advocated in one text-book, while the very next book you pick up as strongly deprecates it. No wonder, then, that the mind of the beginner is as badly fogged as his plate may be.

For our present purpose we may divide these intensification processes into three divisions, *i.e.*:—

1.—The image is first *bleached* by the application of a certain chemical, while another chemical is employed to darken it again, producing greater density,

2.—The image is darkened by the application of certain chemicals *without* previous bleaching.

3.—The image, after being first bleached, is treated after the manner of an exposed but undeveloped plate. This is called intensification by redevelopment.

In the first case, in which bleaching precedes the darkening of the image, the bleaching chemical perhaps most generally employed is mercuric chloride.

We take

Mercuric chloride	100 gr.
Potassium bromide	100 „
Distilled water	10 oz.

or—

Mercuric chloride	5 parts.
Pure hydrochloric acid	1 part.
Distilled water	100 parts.

Dissolve and filter if necessary, as any undissolved particles of the mercuric salt would be liable to produce spots on the negative.

Into this solution place the negative, previously well washed (or soaked) and freed from hypo, until it is bleached right through, and appears of a white or greyish white colour on both sides; it is then again thoroughly washed, and is now ready for the darkening solution. In this process the following reaction occurs:—

$$Ag_2 + 2HgCl_2 = 2AgCl + Hg_2Cl_2.$$

Now there are several methods employed to darken the image. We propose to take three, and refer to them in the order of the effect they produce.

(*a*) If we have a fairly good negative, which is nevertheless somewhat thin and produces a flat print, we may introduce the necessary sparkle by using sodium sulphite as the darkening chemical. If the *bleached* and thoroughly *washed* negative be placed in a ten per cent. solution of sodium sulphite, acidulated with citric acid till it is darkened *through*, again washed and dried, we shall attain our end. The reaction in this case is as follows:—

$$Hg_2Cl_2 + Na_2So_3 + H_2O = 2Hg + Na_2So_4 + 2HCl.$$

Should the density not be considered sufficient, the bleaching and darkening with sulphite may be done a second or even a third time.

(*b*) A more pronounced effect is produced by the employment of ammonia, and this chemical was very generally used, and is so still to a great extent. The *bleached* and *washed* negative is immersed in a *weak* solution of ammonia, *i.e.*, about 10 minims of the ·880 solution to one ounce of distilled water, till it is darkened right through, and then washed again, and dried. The reaction here being—

$$Hg_2Cl_2 + 2NH_3 = NH_2Hg_2Cl + NH_4Cl,$$

the dark substance NH_2Hg_2Cl., being dimercurous-ammonium chloride.

(*e*) The third method certainly gives very decided results, but with regard to it authorities differ. For instance, Captain Abney has great faith in it; Mr. Bothamley says the only drawback is in the use of the highly poisonous potassium cyanide; Prof. Meldola does not raise any objection to it; but Mr. Chapman Jones says this formula has been proved to be unreliable, and there is no need ever to use such a process. For ourselves, all we can say is, that negatives intensified by it (carefully, of course) some five years ago, show no sign of change. Putting difference aside for the moment, the process is as follows:—The bleached and *washed* negative is immersed in a solution made thus—

No. 1.

Silver nitrate...	100 gr.
Distilled water	10 oz.

No, 2.

Cyanide potassium	100 gr.
Distilled water	1 oz.

Dissolve. Add 2 to 1 gradually and with stirring, till the precipitate first formed is *nearly* but *not quite* dissolved, as it is very essential not to have any excess of the cyanide, otherwise after intensification a weakening action ensues—the same result obtaining if the negative is left too long in this solution of potassio-silver cyanide. The reaction in this case is somewhat complex, but may be as follows:—

$$Hg_2Cl_2 + 2AgK(CN)_2 = Ag_2 + 2Hg(CN)_2 + 2KCl.$$

These comprise the process of mercurial intensification so far as previous bleaching is concerned, but those who have not already done so, we would recommend to carefully study the paper by Chapman Jones in the *B.J.P.* for Feb. 3rd, 1893, p. 70, and in *Photography* for March 9th, 1893, p. 146.

* * *

A Vignetting Device.—Take strips of soft pine, 1 in. wide by ½ in. thick, into which has been made a groove one-eighth deep near one edge. Fasten these strips around the two sides and one end on front of frame; the groove farthest from frame. Having cleaned the film from an old worthless negative or spoiled plate, paste over it on one side a piece of sepia skin tissue paper, and now slide the glass in the groove, paper side down, and fasten on the remaining end piece. This latter piece might be fastened with screws, so that it could be taken off and glass removed, when frame can be used for plain printing. Mix up some venetian red with water to use for opaqueing. Place your negative to be vignetted in the frame, and hold up to the light, and apply the opaque to the outside of the glass vignetter with a small brush. Cut off the bust with cotton as with other vignetters. The opaque being applied to the glass can be washed off and applied over again when a different negative is to be vignetted. The trouble of having to make new vignetters every time is thus done away with. With this arrangement a perfect feather edge or plain white ground can be produced at will.—*F. H. Murphy in the "St. Louis and Canadian Photographer."*

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[*] Read before the Croydon Micro. and Nat. Hist. Soc.

Exhibitions.

Society	Entries close.	Opens.	Closes.	Address of Secretary.
Croydon Camera Club ...	—	April 5	April 8	G. R. White, 55, Albert Road, Croydon.
National Photographic Exhibition, Crystal Palace ...	—	April 10	April 29	
Bolton Photographic Society	—	April 12	April 15	
Philadelphia (U.S A.) Phot Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.
National Sportsman's Exhibition (Photo. Apparatus Section).	—	April 24	May 6	Royal Aquarium, Westminster.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B

Societies' Notes.

A society for Cheetham and District has been formed, and will meet every alternate Tuesday at the Institute, 490, Cheetham Hill Road, Manchester. The next meeting is on April 11th. Mr. W. T. Wilkinson is the President, and Mr. W. E. Hurnell, of 21, Larch Street, Manchester, the Hon. Secretary.

* * *

The time for return of entry forms for the Forfar Exhibition has been extended to 11th inst. Mr. W. J. Anckorn, of West Port, Arbroath, will be pleased to give full particulars.

* * *

Hunter and Co., late of Norwood Road, have removed into more extensive premises at East Done Works, Lewisham, S.E., and have now got their factory into full working order. One portion is set apart for the manufacture of plates and films, the other for the production of the well-known specialities for which they are famous.

Societies' Meetings.

Ashton-under-Lyne.—On the 29th ult. Dr. A. Hamilton gave a demonstration on "Platinotype Printing," in the new cold process, and developed three prints. The first was done by passing the print through the solution. The second was by placing the print on a sheet of glass, and then, by means of a brush, distributing the developer over it. The last was a picture which he had not been able (by any other means) to get a satisfactory print from before. By this process he brought it out beautifully. He did this by local development with the brush. Mr. C. E. Redfern was in the chair.

Bath.—A lantern evening was given on 22nd ult., at the Royal Institution, when Mr. Austin J. King, President, gave a lecture on "Some Memoirs of a Buried City" (Pompeii). The chair was occupied by Dr. G. Norman. The Secretary announced that the lens to be used that evening for the projection of the lecturer's slides was of a new pattern, manufactured and forwarded for the occasion by Swift and Son, opticians, London. Mr. King dwelt not only with the existing buildings of Pompeii, of which many photographs were exhibited, but also with the numerous bronze articles of household and domestic use which have been found in the course of the excavations. With the aid of these and of plans of the Roman houses and villas he attempted to show what manner of men and women inhabited Pompeii, and how they lived their lives. The streets, the temples, the theatres, the amphitheatre, the palaces of the rich, the hovels of the poor, the baker's shop, the public bakery, the inn, the wine bar, the baths, were made to tell their story. Some pictures were from photographs by the lecturer, others from drawing of Gill's restoration, and others again were descriptive. The audience was a very appreciative one, and followed the lecturer closely through his account of what had been based upon what there still is. All agreed that not only is Pompeii just the place where good photographers would like to be sent to, but that without the aid of photography, the great treasures of this marvellous city of the dead would be lost to nineteen-twentieths of those who now revel in the archæological and ethnological treat which the excavations have provided.

Blackheath.—A meeting was held on 29th ult., the chair being taken by Mr. J. T. Field, Vice-President. It was announced that the summer session would be commenced on April 15th with a visit to Aylesford, and after the election of three new members had taken place, a lecture on the Sandell plate was given by Mr. S. Herbert Fry. The lecturer laid much stress on the suitability of these plates for hand-camera work, as the top film is very rapid and the plate will stand any amount of forcing in development. The claims that these plates will not show halation, and will give full detail in the shadows without the high lights becoming blocked were fully substantiated by the prints shown, all of which were of very fine quality. Time exposures should always be ample, as the plates cannot practically be over-exposed, but in such cases development should be started with a weak solution to avoid darkening or fogging the upper film, and thus preventing the operator from watching the progress of the image on the lower films. In cases of extreme over-exposure the upper film becomes solarized, the image being formed on the slower films underneath. A fixing bath of 8 oz. to the pint was recommended, on account of the unusual thickness and richness of the films.

City of London College.—On the 30th ult. paper by Mr. F. C. Bursill, on "Photo-engraving," summarised as follows:—Photo-engraving, a photographic industry of great importance; bitumen sensitive to light; line etching; tone plates; use of screen for negatives; proof from plates in early stage, suggesting improvements; method of etching plates to render it fit for printing from; photogravure; collotype, etc. Specimen prints in the various stages of each process, and specimen plates were shown. Photographs taken in the Tower of London were shown by the Secretary. One member was elected and three proposed.

Cornish Camera Club.—Meeting held on the 27th ult. Mr. R. Pearce Couch gave an interesting demonstration of the developing powers of amidol on plates taken with a hand-camera.

East London.—Meeting on 28th ult., Mr. Wilkinson (Vice-President) in the chair. Rules for the Society's next exhibition were framed; it was decided to have two open classes, one for general photography, and one for sets of six lantern studies, particulars of which will be published in due course. The Amateur Photographer Prize Slides, which were greatly admired, were passed through the lantern by the Hon. Secretary, as were those kindly loaned by the Cheltenham Society, which are of first-class merit.

Hackney.—On the 28th ult., Mr. E. Puttock in the chair Question: Mr. Gosling asked, could a portrait lens be used for landscape work? Reply: Mr. R. Beckett said, yes, in many instances but there was a weakness on account of the liability to flare spot; stopping down decreased spherical aberration. Mr. Dean asked where could be found a table giving the relative proportion between light reflected and that refracted from a polished plane surface of glass at various angles, ignoring the factor of opacity in the glass diminishing the strength of rays refracted. Mr. Avent thought it could be found in "Monkhoven's Optics." Work was shown from Mr. Cross. Mr. Grant said when the Sandell plate first came out he took a view at sunset, light strongly reflected from water, very dark under trees, without halation, with an exposure that could not have failed to have produced it on any other plate. Mr. Sodeau suggested, for comparison, to try exposures on a Sandell and an ordinary plate, backed with caramel and burnt sienna. A series of views by Mr. Scamell, entitled "London Street Cries," was then put through the club lantern, after which a few slides from Mr. Hudson.

Liverpool (A. P. A.).—A meeting was held on 30th ult., Mr. Paul Lange in the chair. Seven new members were elected. Mr. F. A. Schierwater exhibited and explained a new dark slide for films, and Mr. B. J. Sayce showed some paper negatives taken in 1850 to 1852. Mr. W. I. Chadwick, of Manchester, gave a very interesting lecture and practical demonstration on the optical lantern, showing the advantages to be gained by the use of triple condensers, also the application of the lantern for scientific purposes, for chemical and electrical experiments, cohesive figures, etc. The first excursion of the season was announced to take place on Saturday, April 15th, to Ince Blundell Hall.

North Middlesex. — Ordinary meeting on 27th ult., Mr. Cox produced a print toned with uranium which had become bronzed in the shadows, but he showed that this bronze could be removed by rubbing with a soft rubber eraser, and showed no tendency to return. Mr. S. E. Wall then read his paper entitled "Photography and Archæology." He fully explained the differences between the different styles of architecture, beginning with the Roman, and following with the Saxon, Norman, Gothic, etc. He exhibited on the screen numerous slides of the most notable examples of the different styles, explaining their beauties and chief characteristics, beginning with the Roman baths at Bath, erected A.D. 400, and following with Norwich, Hereford, Tewkesbury, Canterbury, Winchester, Salisbury, etc. He strongly recommended photographers to pay more attention to architecture, as being a subject abounding with interest.

Phot. Soc. Ireland.—On 22nd ult. Mr. Clibborn, of Liverpool, read one of his well-known lectures, illustrated by slides from negatives by Mr. Thompson. It was thought expedient to hire the hall of the Institute of Engineers for the occasion, and this large room was filled to the utmost, such is the reputation of the able lecturer

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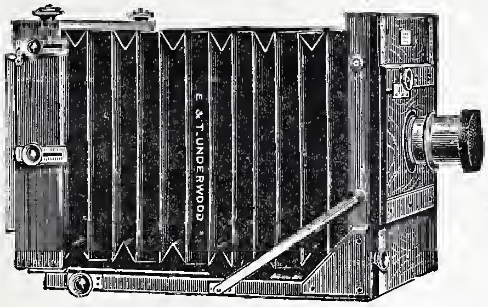

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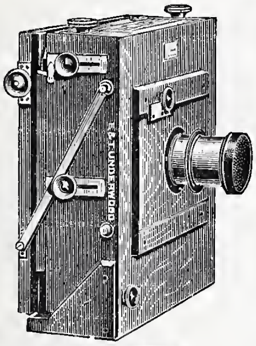

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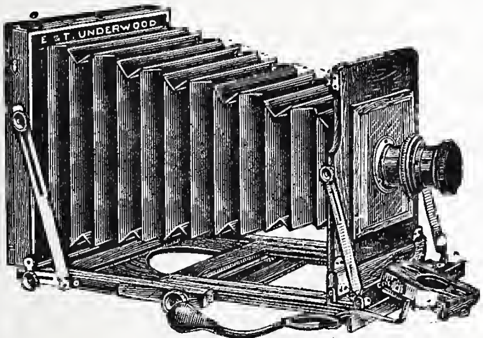

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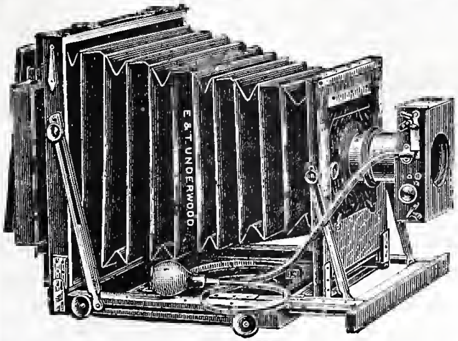

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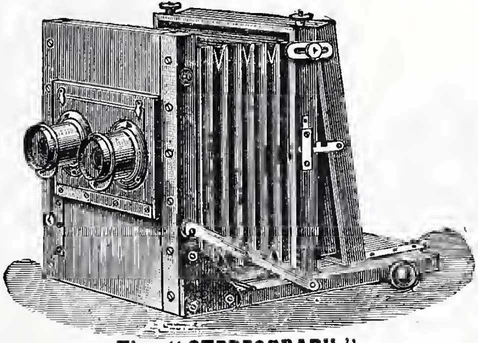

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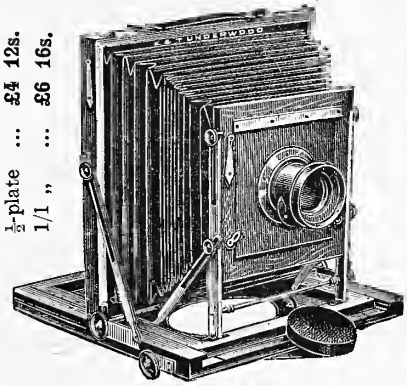

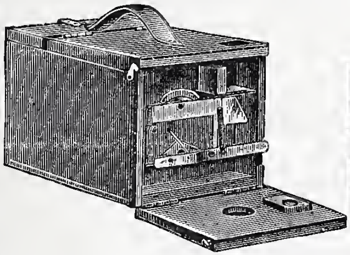

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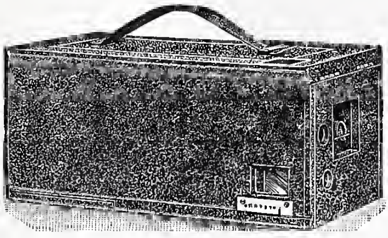

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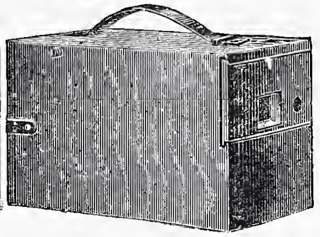

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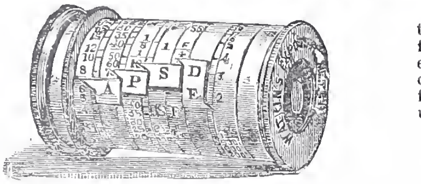

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and his friend, Mr. Thompson. The trip described was one through Normandy. The evening's entertainment was a thorough success.

West London.—On 28th ult. Mr. H. Peal, President of the Ealing Photographic Society, gave a lecture on "Copying Engravings and Drawings." As requisites he demanded daylight, preferably a top light including a wide angle of sky, and appliances specially arranged for the purpose. The lecturer described the apparatus employed by himself in copying engravings in books, consisting of a baseboard of box-girder form with sliding carrier for the camera and an adjustable frame to hold the book or engraving. He advocated the careful ruling of sets of lines in rectangles upon the ground-glass screen of the camera to ensure facility in focussing. The camera front was raised and lowered by the turning of a disc mounted excentrically. Coming to the method of working the lecturer stated that the engraving must be centred with the lens, then focussed, and the final adjustment given. He used small stops ranging from *f*/11 to *f*/22 to obtain due sharpness. Mentioning the exclusive employment by professional photographers of wet collodion for copying, he claimed equally good results with less trouble from dry plates, such as the Mawson photo-mechanical plate. He found no advantage in backing the plates, but he impressed his hearers with the necessity of carefully dusting them and of excluding dust from the dark slides. For regulating exposure he used the Watkins meter. For reference, he marked all references with a series number, a subject number (in relation to the Watkins meter), and an initial to indicate the developer used. After mentioning that he employed his negatives for the double purpose of producing prints and making lantern slides, the lecturer described a convenient apparatus for the latter purpose in which the top light was reflected through the negative by a ground opal glass plate. An ingenious arrangement of cams was employed for centering and holding the plate in the camera. For development, the new developer amidol had many advantages, notably its quickness of action, cleanliness, and power of developing several plates in rotation, whilst it enabled the photographer to do with one-third of the usual exposure, and the developing dish required no rocking. The formula was 4 gr. amidol, 45 gr. sulph. soda, $\frac{1}{2}$ gr. brom. pot. to 1 oz. water. The lecturer developed two plates with this solution, under somewhat adverse conditions, with complete success. A discussion followed Mr. Peal's lecture.

SOCIETIES' FIXTURES.

April 6—Hull.—Annual Meeting.
,, 6—Ashton.—Social Meeting.
,, 6—Harringay.—Demonstration, "Frena System," by Mr. Bynoe.
,, 6—Liverpool.—Lecture by Mr. W. T. Wilkinson, "Printing and Toning on Albumenised and Print-out Gelatino-Chloride Papers, Vignetting, Clouds," etc.
,, 7—Croydon.—Demonstration on the "Sandell Multiple-coated Plate," Mr. S. H. Fry.
,, 7—Lewisham. — Annual General Meeting; Election of Officers.
,, 7—Brighton and Sussex.—Exhibition of Prize Prints; Report on "Photographic Survey of Sussex."
,, 7—Dewsbury. — Business Meeting; *Photography* 1892 Prize Slides.
,, 7—Leeds (Y.M.C.A.).—Wet-Plate Process.
,, 8—Croydon.—Excursion to Hayes. Conductor, Mr. Low Sarjeant.
,, 10—Richmond.—"Architectural Photography," Mr. F. P. Cembrano, jun.
,, 10—N. Middlesex.—"Technical Development," by Mr. Cox.
,, 10—Woolwich Polytechnic.—"Platinotype Printing Process," by S. G. Buchanon Wollaston.
,, 10—Putney.—"The Sandell Plate." Lecture and Demonstration by Mr. S. Herbert Fry.
,, 11—Newcastle-on-Tyne.—Ordinary Monthly Meeting. Mr. W. Parry will read a paper on "Retouching."
,, 11—Hackney.—Members' Lantern Night.
,, 11—W. London.—"Hints on Frame Making," by Mr. W. S. Rogers.
,, 11—Stockton.—Monthly Meeting; "The Practice of Photography," by Dr. Stainthorpe.
,, 12—The Photo Club.—Members' Open Night.
,, 12—Croydon.—Ordinary Meeting.
,, 12—Liverpool.—Comparison of Work.
,, 13—Oldham.—Demonstration, "Photo, Optics, Lenses, etc.," Mr. J. Lees.
,, 13—Leigh.—Social Evening.
,, 13—Huddersfield.—American Slides.
April 13—Liverpool.—Lecture by Mr. W. T. Wilkinson, "Printing by Development on Alpha and Bromide Paper, Opals, Lantern Slides by Contact."
,, 13—Dublin Y.M.C.A.—Technical Meeting and Exhibit of Prize Slides.
,, 14—Halifax.—"Our Experiences as Novices." Messrs. Blakey and Booth.
,, 14—Croydon.—Extra Lantern Evening—Lecture on "Winchelsea and Rye," by Mr. A. Brooker.
,, 15—Liverpool.—Outing to Bidston. Leader, Mr. W. A. Stuart.

* * *

Red Printing Process.—In a small quantity of water mix 72 gr. of nitrate of uranium and 20 gr. of nitrate of copper; then neutralise the solution with a little carbonate of soda, and make up with water to measure a litre. Paper sized with gelatine or arrowroot is floated in the solution for a minute or two, and dried in the dark. Printing is carried out beneath the negative until the image is fairly visible. It is then developed with an 8 per cent. solution of potassium ferrocyanide, until the required density is obtained. Fixing is accomplished by well washing with plain water. If sepia tones are required, the uranium-copper solution is neutralised with ammonia, and the developing solution made of two per cent. ferrocyanide only."—M. Letellier, in "*Revue Photographique*."—"*Photo. Times*," January 20th, 1893.

Relation of Photography to Art.—M. Robert de la Sizeranne has an excellent article on this subject in the mid-February number of the *Revue des Deux Mondes*. He dwells, first, on the service photography has rendered to painters in enabling them to study correctness of detail. The conventional landscapes, the complicated architectural backgrounds, the "ideal" and impossible forms of men and horses have all disappeared. The whole art of "historic landscape" has been relegated to the valley of lost lumber. In perspective, photography has made it possible for us to appreciate more accurately the size of figures in different planes. Most painters before the rise of photography will be found to have given too much importance to the figures of their background or middle distances, relatively to those of the foreground—a mistake frequently made by amateurs in landscapes. Photography has also simplified, to an astonishing degree, the production of panoramas. After noting the influence of photographs of distant countries in interfering with the production of fancy tropical landscapes and imaginary Eastern scenes, and the revolution it has brought about in the art of portraiture, M. de la Sizeranne goes on to discuss what may be expected of photography in the future. He devotes several pages to the discussion of Mr. Muybridge's instantaneous photographs, and inquires whether we are to accept the often extremely awkward poses shown in them as nearer reality than what the ordinary eye supposes itself to see. He thinks not—rather that the Kodak picture is a violent exaggeration; for it presents to us, immovably fixed, a position in which the animal only remained for so incalculably minute a fraction of a second that to the eye it blended with the position immediately following it, and so formed part of a harmonious motion. Every movement consists of a succession of poses, each lasting so infinitesimally short a time that we see none of them separately. What we do see (when the motion is not too quick to let us see anything distinctly) is a generalised representation of the whole, a kind of composite photograph, so to speak; and an approximate picture of this is nearer the truth than any number of instantaneous photographs of separate poses. It is, however, a distinct gain, that the classic charger, at full gallop, with all four legs extended in the air at once, who never existed on earth save in battle-pictures, should finally have been driven from the field. Photography is growing more and more perfect every day; even the great colour problem seems to be as good as solved at last. M. Lippmann has succeeded in producing several very successful photographs in colours, by availing himself of the laws of interference of light. Last spring, at the International Exhibition of Photography at Paris, he exhibited a picture of an Ara parrot (blue and yellow), and a branch of holly; at a later date he succeeded in reproducing a stained-glass window in four colours, a group of flags, a plate of oranges with a red poppy, thus almost completing the chromatic scale. He uses a mirror, a film of gelatino-bromure, and a little mercury. It may be said that, since this last step has been taken, photography leaves nothing for the painter to do. If it were true that the only object of art is the mathematically accurate reproduction of the world around us, this argument would be unanswerable, and the "realist" school, who maintain this position, are beginning to find that they have no *raison d'etre* whatever. There remains, then, nothing for artists to do but turn their attention to those (of late somewhat neglected) regions which the camera cannot reach; and we may consequently expect a new development of imaginative and idealistic art.

Apparatus.

LEWIS' STEREOSCOPE.

Mr. H. C. Lewis, of 14, Cunliffe Terrace, Bradford, sends us a sample stereoscope of the American pattern, made in walnut, with sliding focussing adjustment, hood, and twelve stereograms, which are sent with the instrument for 7s. 6d.—a price which should bring it within the reach of all. The prints are effective, especially one of sea-gulls in flight.

* * *

Collodion Varnish or Pyroxyline Varnish.—The following is recommended as a varnish having considerable body and adapted for making stiff films, if dried on a flat plate :—

Acetate of amyl	1,750 cubic centimetres.
Benzole	1,750 ,, ,,
Acetone	870 ,, ,,
Pyroxyline	125 grammes

Bright metal objects may be varnished by dipping, while gelatine negatives may be varnished by the old method of pouring off and on.—*Photo-American, January*, 1893.

Stripping Gelatine Negatives.—Herr Liesegang recommends the following method for detaching gelatine films from their glass supports. The negative or positive, after development, etc., is immersed in a weak solution of sulphuric, hydrochloric, or citric acid. After a few minutes it is (without washing) placed in a concentrated solution of sodium carbonate. Carbonic acid gas is thus formed between the film and its support, which causes the film to bubble, when it can be removed with ease. After detachment the film is given a bath of absolute alcohol. It then dries quickly and perfectly flat.—*Pacific Coast Photographer*, January, 1893.

The Intensification of Collodion Emulsion Plates.—For half-tone pictures the mercuric bichloride and ammonia intensifier should be avoided ; it tends to destroy the gradation of the tones. By the addition of acid any developer can be used with silver nitrate as an intensifier for these plates. Metol has given good results both with these and with wet plates. The formula recommended is as follows :—

A.

Metol...	15 gram.
Citric acid	10 ,,
Distilled water	1 litre.

B.

Nitrate of silver	10 gram.
Distilled water	100 c.c.

The operation is conducted as in the silver intensification of wet plates.—*Photo. Times*, January 20th, 1893.

Lantern Recital.—The illustration of popular recitations by means of the lantern seems to be coming largely into vogue. At one entertainment—Savile Town, Dewsbury, for example—there were not less than three given in one evening, namely, the "Pied Piper of Hamelin," the "May Queen," and the "Jackdaw of Rheims." There is doubtless a large field open for really artistic work in this direction. The second portion of the evening consisted of a series of views of the Peak and Dales of Derbyshire, which, in connection with its accompanying reading, enabled the audience to form some judgment of the beautiful places which are to be found adjacent to the Midland Railway.

Mixed Developers.—Hydroquinone mixed with eikonogen is said to possess considerable advantages. The eikonogen counteracts the tendency of hydroquinone to yield intense negatives and therefore harsh pictures, unless the exposure be lengthened or a great proportion of alkali be employed. Dr. Charles Decaux gives the following formula for instantaneous exposures. It should be diluted for use with an equal volume of water :—

Water, boiled	1,000 grammes	= 34 oz.
Sodium sulphite	120 ,,	= 30 dram.
Hydroquinone	15 ,,	= 231 gr.
Eikonogen	10 ,,	= 154 ,,
Potassium ferrocyanide ...	20 ,,	= 308 ,,
Potassium carbonate ...	75 ,,	= 19¼ dram.
Caustic potassa	15 ,,	= 231 gr.
Potassium bromide ...	1 ,,	= 15·4 ,,
Glycerine	1 ,,	= 15·4 ,,

The substances should be dissolved one after another in the order indicated.—"*Photo. Times*," *December* 30, 1892.

The Cultivated Eye.—The value of the cultivated ear is well understood, but it is not so valuable as a cultivated eye. You can possess the latter by hard practice under rule. If you would cast a beautiful figure, you pour the molten metal into the mould and not at random upon the yielding sand. So must you be governed by the rules of art in order to produce the best results in your profession. Just as the outlines of the mould guide the metal into shape, so will these rules gently shape you when you are at work, suggest expedients to you, and enlarge your field of invention.—*Wilson's Photo. Magazine.*

To Obtain a Long Exposure on a Wet Plate Without Drying or Markings.—Have a plate-glass, perfect, about one-eighth of an inch thick, placed in front of the kit—have it so arranged that it can be easily removed. The plate must be as clean as it can be polished; a grease stain that is not visible to the eye, but can be easily seen by breathing upon it, will make a surface mark on the negative just as it appears in the moist state. This plate should not be less than one-eighth, nor over one-quarter inch from the negative surface ; should the negative be larger than this plate, in a very long exposure the edge outside will be perfectly crystallized, while the protected surface will take the developer easily and clean. The bath should not be overcharged with alcohol, and the collodion must be perfectly ripe, otherwise markings will come from that cause. The plates must be cleaned on the back as nearly dry as possible before putting in the holder, and rested on a clean blotter.—*Wilson's Photographic Magazine.*

Intensifier with Hydrochinon and Silver.—

A.

Hydrochinon...	45 gr.
Water...	6 oz.
Nitric acid, ch. p.	17 minims.

B.

Nitrate of silver	60 gr.
Water...	2 oz.

Bathe the negative to be intensified in a mixture of :—

Water	50 parts.
A solution	25 ,,
B solution	3 ,,

The process is slow, but any degree of intensity is attainable.—*David and Scolik's Note and Reference Book.*

Positives Direct.—Expose a plate in the usual manner, develop with eikonogen developer :—

No. 1.

Sulphite of soda (crystals)	3 oz.
Hot water	45 ,,
Thoroughly dissolve, then add—	
Eikonogen	1 oz.

No. 2.

Sol. soda	4 oz.
(or carb. of potassium 1¼ oz.)	
Water	15 oz.

To develop, take of—

No. 1	3 oz.
No. 2	1 ,,

When the negative is almost developed, expose it to daylight, keeping it well covered with developer; in about 30 sec. you will see the change from negative to positive. Wash and fix in the usual manner, and you will have a well-defined positive. — *Chas. W. Weatherwax, in the "St. Louis and Canadian Photographer."*

Stafford.—The annual meeting was held 10th ult, Mr. E. B. Wain presided, and there were also present Messrs, Hewitt, Walley, Hils, Porter, Tryney, Gibson, Guy, Burgess, Powell, Savage, Slater, Leach, Crosse, and Myatt.—The secretaries, Messrs. Hewitt and Whalley, presented their annual report, which showed that the society had been progressing steadily during the last year, and the Treasurer (Mr. S. Crosse) also stated that after deducting all expenses there was a handsome balance to the credit of the society.—Mr. E. B. Wain was again elected president of the society, Messrs. Burgess, Powell, and Shorter vice-presidents, Messrs. Guy, Slater, Hils, Porter, Savage, and Gibson were elected on the committee, Messrs. J. F. Hewitt and W. H. Walley were re-elected secretaries, and Mr. S. Crosse was appointed treasurer.—In a short address the President (Mr. E. B. Wain) detailed the progress made by photography and the society last year, and suggested one or two schemes by which the society might be made more useful and interesting to its members. One of these was in the form of a continuous competition on set subjects, prints for which should be sent in each month. This plan was adopted, and it was agreed that the subject of competition for next month should be "Inland Scenery." Mr. Powell offered a silver medal in connection with this competition, and Mr. Hewitt a bronze one. It was also decided to hold a series of one-man exhibitions, the president to give the first. The results of the recent society competition were announced; Mr. Walley received the president's silver medal, Mr. Porter the society's bronze one, and Mr. Guy the society's certificate. It was announced negotiations were in progress with Mr. Chadwick, of Manchester, for a paper on "Stereoscopic Photography." The secretary also intimated that proposals had been made by the Wedgewood Institute for amalgamation, and that these were under consideration.

To Correspondents.

All communications for these columns are to be addressed to The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.

Rules..

1. Write clearly and distinctly on one side of the paper only.

2. Write each Query or Answer on a separate sheet of paper.

3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume.*

4. All matters for these columns MUST be received by TUESDAY MORNING'S Post.

5. The Editor does not undertake to answer Questions by post.

QUERIES.

6014. **Plymouth.**—Any hints as to the most suitable spots for photographers at Plymouth will be received with thanks.—A. R. N. O.

6015. **Plates on Tour.**—Which is the best piece of apparatus to use to carry a number of under-exposed plates when on tour, and which will also be useful for putting exposed plates?—T. Humber.

6016. **Road Map.**—I want a map which will give the principal roads and spots on the road to Staines from London.—E. R.

6017. **Flare.**—What is meant by the word "flare" in photography?—Lighthouse.

6018. **Crayon Work.**—Is there a work published on how to touch up enlargements by means of crayons or stumps?—Anon.

6019. **The Thames.**— Which part of the river Thames are there the most number of subjects for the photographer, without going far inland?—K. K. C. S.

6020. **Printing-Out Platinum.**—Can any reader give me a good working formula for making printing-out platino paper? I have been experimenting in this direction, but cannot get good results. The colour of the image is weak and not vigorous enough. How can I get good blacks?—Silver

6021. **Photo-xylography.**—Can any reader inform me of a good method of photographing on box-wood for engraving, either transferred or direct?—Gravure.

6022. **Savernake.**—Will anyone who knows this place and neighbourhood say if there are pretty bits for a camera, and whether it is worth a visit for scenery?—Tourist.

6023. **Mounting.**—Kindly tell me the best way to mount Fallowfield's new celloidin silver emulsion paper.—Ethel M. A. Whitmore.

6024. **Blind Shutter.**—The blind of my shutter has got thin and lets in light. I should be glad to know of some way of making it all right.—A. B. K.

ANSWERS.

6006. **Level.**—If "Soce" has not a spirit level he had better lay an oblong bottle of water (or any other solution) on the top of the camera. This answers equally well, and is handier. Another way for levelling camera is as follows:—An ordinary stout steel knitting needle is softened at one end in the gas flame or fire, and with a pair of nippers turned, while still red-hot, into a loop. It is cooled by plunging it into cold water. A couple of stout pins, with their heads cut off, are bent into a ⊓ shape, one of which, placed vertical at the side of the swing-back, suspends the knitting needle to swing freely, the other, placed horizontal near the lower end of the swinging needle, limits the play of swing. The swing-back is carefully set vertical, and the position of the needle when at rest is marked. A suitable marker is obtained by cutting off the head end of a small pin a quarter of an inch from the head, and driving into the wood flush with its surface.—D. H. W. Preedy.

6008. **Photo Engraving.**— An ordinary carbon print is developed on a polished plate of copper, this being thinly plated with silver. While the carbon print is still wet, fine sand, previously slightly waxed or stained, is dusted on it. When all is dry, the sand can be removed by a gentle friction, leaving the gelatine in a grained condition. Blacklead is then gently rubbed on the picture. In order to mount engravings, strain thin calico on a frame, then carefully paste on the engraving so as to be free from creases. Afterwards, when dry, give two coats of thin size (a piece the size of a small nut in a small cupful of hot water will be strong enough). Finally, when dry, varnish with white, hard varnish. If engraving on glass is required, the glass to be engraved must be cleaned thoroughly, and polished. A paper stencil of the desired form is fastened to the glass or metal plate by means of mucilage of good quality. The pattern should be made of thick writing paper, and care should be taken to see that every part of the paper is thoroughly attached to the plate. Any gum around the edges of the paper should be removed by means of a moist sponge. The exposed parts of the plate must be perfectly clean and free from streaks. "Dick" had better get "Photo Engraving," by W. T. Wilkinson, from Hampton, Judd and Co., 13, Cursitor Street, E.C.—D. H. W. Preedy.

6009. **Rubber.**—I think "Kybosh" will find that by rubbing his tube and ball of pneumatic shutter over with a little pure oil, and gently exercising it, that it will become all right. The reason of their becoming hard is, perhaps, the want of use.—D. H. W. Preedy.

6009. **Rubber.**—Soak it in warm water for a short time.—Montrose.

6010. **Bromide Prints.** — The cause of this, I believe, is over-exposure and prolonged development. —Montrose.

6012. **Surrey.**—T. H. L.'s question would require a large space for answering, but I advise him to get "The Way About Surrey" (1s.), from Messrs. Iliffe and Son, 3, St. Bride Street, Ludgate Circus, E.C. A book on Sussex is also in preparation.—D. H. W. Preedy.

QUERIES UNANSWERED.

March 17.—Nos. 5979, 5980, 5987.
,, 24.—Nos. 5990, 5991, 5994, 5995, 5996, 5998, 5999, 6001.
,, 31.—Nos. 6003, 6004, 6005, 6007, 6013.

EDITORIAL

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—Ed. Am. Phot.

C. W. Richardson.—If you refer to the article quoted on the focal plane shutter, you would find it stated that the best method of testing such shutters was by the aid of Wilson's shutter chronograph, which was patented by Mr. Wilson, of the Paget Prize Plate Company, and who will test any shutter for a small fee. The chronograph is a revolving plate of opal inscribed with a circle divided into 100 parts, behind which a bright light is arranged.

G. Murray.—(1) The shape of the diaphragm should be circular. Traill Taylor, in his capital little book, "The Optics of Photography," says, "Whimsicality in shape goes for nothing in regard to illuminating one portion of the picture more than another." (2) Use the largest stop that will give you the definition you require. (3) A strong developer we should think would be preferable.

W. Bailey.—Plates have been kept over four years after exposure and before development without any ill effects being noted. Amidol will give you the softest results, and a good formula is that recommended for the Ilford plates:

Sulphite of soda	2 parts.
Water	10 ,,

For use, take—

Stock solution	1 oz.
Water	4 ,,

10 per cent. sol. bromide of potash 25 minims.

Add the amidol dry, two grains to the above quantity of solution, more or less, of course, being taken according to the density required. Amidol is diamidophenol, and has the formula of $C_6H(NH_2)_2OH$. Quinol or hydroquinone, hydrochinone, hydrokinone is paradihydroxybenzene, and has the formula of $C_6H_4(OH)_2$. Pyro is pyrogallol, or trihydroxybenzene, $C_6H_3(OH)_3$.

A. Carter.—Far better results would have been obtained had the group been taken in diffused light, not sunlight. The negative is too harsh, the white too bright and wanting in detail. The print is good, and the grouping by no means bad.

J. H. Hield.—Prints, not slides, for next competition. See "Our Views."

J. Smart.—(1) The solution is quite satisfactory, and control may be kept over the degree of enlargement. (2) We should choose Nos. 3 and 8.

R. J. Hillier.—Thanks for letter and cutting, which we will look into, but to the best of our recollection the photographs by Boulton were said not to be photographs at all.

Auld Reekie.—(1) Rather over-printed, or else negative wants intensifying. (2) Spoilt by the hydrangea in the centre, and it would have been better to have placed the third figure at the bottom of the stairs, looking up to the other two as though talking to them, and turned the plate the other way. (3) Very fair. (4) Ditto, though overtoned. (5) Good. (6) The background does spoil it, because it is so out of focus as to be spotty and patchy, and thus catch the eye, and detract from the figures.

L. D. A.—(1) Printed too deep, but good. (2) Spoilt by the vignetting, and wants clouds. (3) Without interest, and negative foggy. (4) Over-printed, and over toned. (5) Ditto, without any interest whatever. (6) Over-printed, too much foreground, and wants sky. (7) Good, but over-toned. (8) Ditto. It strikes us that most of your negatives are too thin and would stand intensifying.

J. L. Thompson.—(1) Over-exposed and fogged in development (2) Ditto. (3) Ditto. (5) Ditto. We should say that if you cut your exposures down to one-half you might get better results, and even to one-third would not be too much. The spots in No. 3, we should say, were due to some impurities in the developer.

A New Reader.—A good formula is—

Potassium iodide	10 gr.
Potassium bromide	135 ,,
Nelson's No. 1 photo-gelatine	30 ,,
Silver nitrate	180 ,,
Nelson's gelatine	160 ,,
Heinrich's gelatine	80 ,,

This will make about 10 oz. of emulsion.

W. Lawton.—We will write you.

A. E. B.—Your print is very much over-printed which is the reason of the dark appearance.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence,*** *Every additional* ***three*** *words,* ***one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one*** *word; compound words count as* ***two*** *words.)*

DEPOSITS.—*money for goods forwarded on approval may be deposited with the Publishers of the* Amateur Photographer, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge* 1s.

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* Amateur Photographer, *1, Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* Editor Amateur Photographer, *1, Creed Lane, London E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.,*** *or a commission of* ***2½ per cent.,*** *upon the sale price of the apparatus.*

Cameras, etc.—On receipt of £6 I will forward my half-plate camera and stock, a bargain.—Robert Lumsden, Boness, N.B.

Camera, whole-plate, two double dark slides, sale or exchange. Wanted, Ross' or Dallmeyer's 5 by 4 R.R.; approval both ways.—Davis, Inkerman Street, Luton.

5 by 4 double extension camera, all movements, four double slides and case, £2 10s.; half-plate Eclipse changing bag, 5s.—J., 36, Arundel Square, London, N.

Cameras, Lenses, etc. — Whole-plate Watson's Premier camera, four double backs, bags, etc., 8½ by 6½ Ross' R.S. lens, equal to new, £15.—H., 55, Val Plaisant, Jersey.

Dark-Rooms.—Dark-room (Davenport), 6½ft. by 4ft. square, all necessary fittings, new condition, cost 92s. 6d., price 3 guineas.—Mrs. Gray, Ottery St. Mary, Devon.

Hand-cameras, etc.—5 by 4 Lancaster's Rover hand-camera, not soiled, bought November, 1892, cost 84s., sell 60s., guarantee perfect.—Charles Pruce, 175, Southwark Park Road, S.E.

Kodak No. 3 Junior, equal new, £5 15s. lowest.—Bygrave, 13, Canterbury Road, Brixton, S.W.

Stereoscopic hand-camera, bound real morocco, roller blind shutter, three special slides taking four quarter-plates each, vulcanite shutters pulling right out, single views can be taken, horizontal or vertical focussing screen, light cane stand, no lenses, £4 4s.—Ede, 194, Elthorne Road, N.

For sale, No. 3 Kodak Junior, new last season, films, £5 10s.—E. Phillips, Bridge Street, Leatherhead.

Lanterns, etc.—Optimus lantern, cost 30s., for quarter R.R.—K., 16, Carberry Place, Leeds.

Lenses, etc.—Ross' No. 3 portable symmetrical lens, cost 70s., for 45s.; Ross' 7½in. rapid symmetrical, cost 105s., for 70s.—Main, 75, George Street, Aberdeen.

To part with, Wray's wide-angle lens, C 1,191, 7½ by 5½, price £2, new, list price £3.—E. Jackson, Dyffryn Fishguard.

Sets.—Half-plate Optimus camera, R.R. lens, slide, leather case, and tripod, £5 10s.—Davis, 10, Dunsford Villas, Merton Road, Wandsworth, S.W.

Whole-plate camera, Wray lens (rapid rectilinear), Kershaw shutter, three slides, tripod, and case, £8 10s; quarter-plate camera, Wray lens, rapid rectilinear], three slides, and case, new last year, £3 10s.; Laverne lens (rapid rectilinear), £1. Wanted, half-plate set.—Crawford, Abercorn Lodge, Portobello.

Half-plate Fallowfield camera, three double backs, tripod, leather case, Optimus R.R. lens, 7 by 5, splendid condition, lot £6 10s., cost double; deposit.—W. Gadie, Park Road, Batley.

Shutter.—Thornton-Pickard shutter, 1$\frac{3}{8}$in. opening, nearly new, 15s.—Myers, 9, Devonshire Street, Keighley.

Lancaster's See Saw shutter, half-plate, 5s. 3d. post free.—Partridge, S. Clether, Launceston.

Sundries.—Quarter-plate reflector focussing hand-camera, with Eastman rollholder, no lens, takes from 6$\frac{3}{4}$ to 7$\frac{3}{4}$ focus lens, 50s.; grey cloth background, 6 by 8, 5s.; pair deep porcelain dishes, 16 by 14, 5s. Wanted, lantern, with 4in. condensers, which could be used for enlarging.—W. G. Perks, Clevelands, Walthamstow.

For sale, second-hand c.-d.-v. portrait lens by Ross, camera, studio stand, and background, 120 half-plate negatives, mostly from Hogarth, a quantity printing frames, developing dishes, washing trough, etc. On view any day between 6 and 8.30 p.m.—102, Bonner Road, Cambridge Heath, N.E.

Microscope object glass, Wray's 1-10th in., with adjustment, in case, new, 45s.; ash tripod for hand-camera, three-fold, weighs 20 oz., 10s. Wanted, half-plate camera, with two double dark slides, only good make.—No. 393, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

"A satisfactory guide."—*Amateur Photography.* Dibdin's "Automatic Exposure Table," 1s.; case 3d.—Grange Road, Sutton, Surrey.

WANTED.

Exposure Meter.—Wanted, Watkins' exposure meter, also first-class quarter-plate changing back.—B., 99, Stephens Green South, Dublin.

Lenses, etc.—Wanted, portrait lens, half-plate, by one of best makers, cheap.—Vasey, Broad Street, Abingdon.

Wanted, W.A R.R., half-plate, by good maker, for cash.—Mr. White, Adelaide, Blackpool.

Studio.—Wanted, good studio, cheap; state full particulars and lowest cash price.—Taylor, 38, Victoria Road, Aston, Birmingham.

Sundries.—Wanted, dishes (porcelain or otherwise), 7 by 8, 10 by 8, shallow and deep, weights (8 oz. to 1 gr.), 6$\frac{1}{2}$ by 4$\frac{3}{4}$ printing frames, and washing and drying rack, cabinet print trimmer, squeegee, and any other accessories suitable for quarter or half plate.—Address, A. P. O'Brien, 136, Lexham Gardens, South Kensington.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Cameras and Sets.—Lancaster's whole-plate brass-bound Instantograph, wide-angle movement, all latest improvements, leather bellows, etc., fitted Lancaster lens, iris stops, instantaneous shutter, two double brass-bound slides, carriers and folding stand, finest condition, £6 17s. 6d., whole-plate camera, Instanto, by Underwood, double extension, leather bellows, rising, falling, and cross fronts, swing-back, etc., double dark-slide, carriers, rapid rectilinear lenses, and folding three-fold stand, £5 17s. 6d.; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; half-plate Lancaster's Instantograph camera, double extension leather bellows, all improvements, rapid rectilinear lenses, two double slides, folding stand and case, £3 17s. 6d.; half-plate camera, by Houghton, Holborn, grand lot, double extension, rising and falling front, swing and reversing back, three double slides, grand rapid rectilinear lens, iris stops, works *f*/8, and three-fold stand, set as new, £6 10s.; Rapidograph half-plate camera, by Perken, Son, and Rayment, double extension, leather bellows, reversing and swing, three double slides, fine rapid rectilinear "Leviathan" lens, iris stops, grand definition, three-fold stand and case, £6 17s. 6d.; half-plate Underwood's Instanto camera, leather bellows, square wide-angle movement, rising, falling, and cross fronts, double dark slide, quarter carrier, rapid rectilinear lens, Waterhouse stops, and folding stand, £3 17s. 6d.; half-plate "Duke" camera, double extension leather bellows, rising, falling, and panel front, back and front extension, two double slides, metal division, rapid rectilinear, Waterhouse stops, and folding stand, as new, £6 5s.; Lancaster's 5 by 4 International, all latest improvements, wide-angle movements, fitted Optimus rapid rectilinear lens, iris stops, double slides, and folding stand, £3 15s. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Tench No. 7 landscape, covers 12 by 10, rotating stops, grand definition, as new, 70s., cost £3 10s.; Dallmeyer No. 3 10 by 8 rectilinear landscape, Waterhouse stops, finest condition, £4 17s. 6d.; whole-plate rapid rectilinear by Watson, Holborn, fitted iris stops, works *f*/8, condition as new, 75s.; Grubb aplanatic doublet lens, fitted Waterhouse stops, works *f*/8, best condition, £3 15s.; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s.; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works *f*/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s.; 7 by 5 rapid rectilinear (Leviathan), iris stops, grand definition, covers well, 30s.; half-plate rapid Euryscope by Bauz, works *f*/6, Waterhouse stops, grand article, 35s.; 7 by 5 Optimus landscape lens, rotating stops, finest condition, 27s. 6d.; 7 by 5 "Black Band" lens by London Stereoscopic Co., Waterhouse stops, covers well, finest order, 45s.; 5 by 4 rapid rectilinear, by Wray, iris stops, works *f*/6, as new, 45s.; 5 by 4 Dallmeyer wide-angle landscape lens rotating (1A patent), rotating stops, grand definition, 50s.; Ross's No. 4 portable symmetrical, 6 in. focus, rotating stops, as new, 63s.; Laverne 5 by 4 wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B), Waterhouse stops, rack focussing, condition as new, £3 17s, 6d., cost £6 5s. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

Bargains in Hand Cameras.—Beck's hand-camera, 5 by 4, fitted Beck's autograph lens, iris stops, eight double dark-slides, Newman's time and instantaneous shutter, two finders, adjustable focus, covered in morocco leather, very finest condition, take £10 10s.; Talmer hand-camera, as new, good lens, time and instantaneous shutter, carries twelve quarter-plates, bag changing, two large finders, lowest, 63s.; B daylight Kodak rectilinear lens, shutter, carries twenty-four films, covered morocco, 45s.; Vannecke hand-camera, by Watson, fitted Watson R.R. lens, iris stops, time and instantaneous shutter, full size finder, adjustable focus, covered leather, size 3$\frac{1}{4}$ by 3$\frac{1}{4}$, bag changing, carries twelve plates, also roll-holder, finest order, £5 15s.; Adams' Ideal hand-cameras, fitted rapid rectilinear lens, time and instantaneous shutter, two finders, carries twelve quarter-plates, covered morocco, £5 7s. 6d.; Houghton "London" hand-camera, fitted good lens, adjustable finder, shutter for twelve quarter-plates, ebonised, as new, 45s.; Lancaster's Rover hand-camera, fitted Lancaster lens, Thornton-Pickard shutter, finder, etc., size, quarter-plate, in leather case, £2 12s. 6d.; Fallowfield's Facile hand camera, fitted R.R. lens, time and instantaneous shutter, carries 12 $\frac{1}{4}$-plates, condition as new, £3 17s. 6d.; Radial hand camera, by Marion, fitted "Soho" lens, carries 12 quarter-plates, shutter, two finders, focusser, etc., in leather case, £5 17s. 6d. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; scientifically constructed, not commercial; several whole and half plate for sale, cheap.

The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Science Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

Magic Lanterns, Magic Lanterns.—Largest assortment in the world, cheapest and best, nicely japanned lantern, 4 in. double condensers, portrait combination front lenses, rack and pinion, four-wick lamp, in case, £1 7s. 6d. Others more elaborate, but as cheap.

The Docwra Triple Prize Medal, highest award, supplied to Dr. H. Grattan Guinness, Capt. C. Selwyn, Madame Adelina Patti, and the Royal Polytechnic, etc.

The Malden Triple; supplied to B. J. Malden, Esq.; unparalleled results; Capt. Chas. Reade, R.N.

Fine Triple Lantern; telescopic draw tubes, four set of high-class lenses, £38 10s., worth nearly double. Given away.

Special Triple; mahogany, entire solid brass fronts, £12 12s.; a really good lantern, unequalled.

Elegant Mahogany Biunial; brass fronts, £7 10s.; blow-through safety jets, 6s. 6d. and 8s. 6d.; mixed gas jet, 12s. 6d.; Malden double dissolving tap, 12s. 6d.; regulators 12s. 6d.; gauges, 12s. 6d.; grand effects; particulars free, before purchasing. Send for Mr. Hughes's grandly illustrated catalogue, over 180 finely cut original wood engravings, price 6d., postage 3d.; separate list of 60,000 slides, price 6d., postage 3d.; pamphlets free; second-hand lists free of bargains.—W. C. HUGHES, Brewster House, Mortimer Road, Kingsland, London, N. Fifty slides, all nicely coloured, on loan for 3s., in special despatch boxes.

Magic Lanterns and Slides.—Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

Regulators and Gauges.—Great reduction in price. Either can now be had of Walter Tyler for 14s. each. The largest stock of gas cylinders in England. Best seamless steel, tested and valved, and all sizes at very low prices.

Slides from Negatives and Pictures.—Walter Tyler manufactures and colours slides on the premises, thus ensuring speedy delivery, and prices are most moderate.—Walter Tyler, 48, Waterloo Road, London.

Biunial Lanterns.—If you are in want of a really good biunial lantern, perfect in every respect, call and see Walter Tyler's entire brass fronted, mahogany-bodied, lined with Russian iron, and fitted with new best quality lenses, and sold at a most moderate price. The top lantern will take a 4-wick lamp. These are great bargains.—Walter Tyler, 48, Waterloo Road, London.

Hire Department is now perfect. Largest and best collection of slides in the world; over 200,000 always in stock. Temperance, travels, Scripture, educational, comic, tales, etc. Cheaper than any other house, no extra charge for coloured slides or effects. Special terms for large quantities.—Walter Tyler, 48, Waterloo Road, London.

Lanterns and Slides.—If you wish to hire, purchase, or exchange, you cannot possibly do better than go to Walter Tyler, who makes this business a specialite, and you will thus save dealer's and all intermediate profits.—Walter Tyler, 48, Waterloo Road, London.

Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps. Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

ENLARGING APPARATUS, quarter-plate, 5in condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work.—Hume, 1, West College Street, Edinburgh.

WANTED, Brother Amateur to Share Portion of House and Dark-room. Moderate terms.—E. H. 44, Wandle Road, Wandsworth Common.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

REDUCING WHOLESALE STOCK.

SECOND ANNUAL STOCK-REDUCING SALE to clear for the coming Season, 50 per cent. Reduction in some cases! New high-class Cameras, all sizes; Platinotype and Key Hand-Cameras. Ross, Dallmeyer, Beck, and Wray's R.R. and Wide-Angle Lenses. 50,000 Mounts, all sizes; Canvas and Leather Cases, Tripods, Presses, Dishes, and all Accessories. Special opportunity to purchase complete outfits at great reductions. Printed Lists on application to EDWARD PECK, Photographic Chemist, East Dereham, Norfolk.

"THE QUEEN" HAND CAMERA, 15/6,

Carries 12 $\frac{1}{4}$-plates or films, in sheaths that will take any thickness glass; has a time and instantaneous Shutter always set ready for exposure; no springs to get out of order; changing of plates very simple and rapid; any one can use it; no sticking of plates in changing; weight *less than three pounds;* will take pictures either way of plate, with good definition at edge of plate. This is a remarkable instrument for the money—only 15/6, covered in good cloth; 22/6, covered in real leather and fitted with two view-finders. Send 2$\frac{1}{2}$d. for sample photograph taken with this instrument in London, to the Factory, Messrs. N. CROUCH & CO., 122, Newington Butts, S.E.

The AMATEUR PHOTOGRAPHER

Telephone No. 1645

Telegraphic Address: VINEY, LONDON

Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 445. Vol. XVII.] FRIDAY, APRIL 14, 1893. [Price Twopence.

OUR ◆ VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 till 5 o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from 10 till 1 o'clock.

Our Views.—Small Society Shows—Automatic Photography—The Empress of Austria and Photographers—The Free Portrait Swindle—*Answers* and Photography—Camera and Cycle—The Crystal Palace Exhibition—Our Deposit System—The Sandell Exhibition—Art and Photography—The Stereo Slides—Photography at Kew—A Query—Our Visitors—Mr. Williams' Paper.

The Central Photographic Club

Flotsam and Jetsam, by Anchorite.

Letters.—Instantaneous Shutters—(One Who Doesn't Know)—A Tour in Belgium (Lux)—Toning Solio (Phosphate)—An Ideal Plate (An Amateur)—Watkins' Meter and Iso Plates (White)—The Sandell Plate (Sandell).

Exhibitions.—Crystal Palace—Croydon Camera Club.

Articles.—Naturalistic Photography (Emerson)—Determination of Plate Speeds (Williams)—How to Take One's Own Portrait (Perkins)—On the Theory and Practice of Intensification (Baldock)—Relation of Art to Photography (Thompstone).

Societies' Meetings.—Aston—Croydon (Micro.)—Eastbourne—Harringay—Hexham—Holborn—Llandudno—Sheffield—South London—York.

EDITORIAL DEPARTMENT—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

TERMS OF SUBSCRIPTION—

United Kingdom........	Six Months,	5s. 6d.......	Twelve Months,	10s. 10d.
Postal Union	,, ,,	6s. 6d.......	,, ,,	13s. 0d.
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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addreased to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of* ***Three Words for One Penny****) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Competition, No. 47. Hand-Camera Work.—Latest day, April 13th.—*Prizes:* **Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, April 28th, 1893.)**

Surely it is about time that small societies recognised the fact that unless they can get together a good exhibition it is far better to have merely a private show amongst themselves. What a grand thing it would be if all small societies in one neighbourhood clubbed together and held a common exhibition! It certainly would reduce the number of medals, it is true, but should be productive of a better show, both as regards number and quality.

◆

We are threatened with yet another automatic photograph machine, which is said to possess several features which tend to give results far superior to anything yet done by such arrangements. The new one is constructed to hold a stock of 240 plates. We wonder how soon the public will recognise the fact that it requires something more than a bit of clockwork to turn out a good picture.

◆

The professional photographer is an artful fellow. It is stated that the Empress of Austria at one time would never allow her photograph to be taken. A certain gentleman, however, more enterprising than the rest of his confrères, hit upon the happy idea of flooding the shops with a wretched caricature of the good-looking sovereign, whose vanity was thereupon touched; permission being at once given for a proper representation of the Royal features to be taken and published.

◆

The average Britisher dearly loves the opportunity of making a bargain, which when he scents from afar he rushes at pell mell, never stopping to think that after all he may be one of the many victims of a practised swindler. The gullibility of some people in this respect keeps the wits of the sharpers continually at work, for no sooner is one swindle exposed than another makes its appearance. The "free portrait" dodge was a favourite swindle some time ago, but we are glad to say it is now being gradually played out. The way the scheme was worked was to advertise "free portraits," and when the public had risen at the bait to charge a most exorbitant price for an almost worthless frame. One of these artful dodgers who has been trading on the credulity of a great many people was last week ordered to appear at the Folkestone Quarter Sessions, but on his failing to put in an appearance, his sureties' bail to the amount of £400 was directed to be estreated.

◆

Answers, in a humorous paragraph, advises everyone to have his photograph ready for the newspapers, for no one could tell how soon he might be called upon to take a Cabinet position, or be elected captain of a suburban bicycle club! If the photograph was not then at hand, reporters would lie in wait with hand-cameras, or the recently used woodcut of some escaped convict would be trotted out to do duty!

* * *

THE use of the camera in conjunction with the bicycle and tricycle is already on the increase even at this early period of the year, many a cyclist being now seen on the country roads equipped with a photographic outfit. We cannot help feeling, however, that if a good, simple hand-camera, extremely light and portable (for the majority of riders object to go in for weight-carrying competitions), were made specially for cyclists, and given a cycling name, this branch of the art would speedily gain very many additional adherents, who are only at present deterred from taking it up through the dread inspired by bulky apparatus. This is a good hint which an enterprising maker might profitably take note of.

* * *

SURELY there is some fatality about the Crystal Palace exhibitions. In previous years we know that there were protests as to some of the society exhibits, and this year we hear that a formal protest has been lodged against one show. Who is to blame? If the regulations and conditions of entry state that only a certain number of pictures are to be sent in, who ought to see that no more are included?

* * *

WHETHER the exhibition at Sydenham be a success or not, we certainly must say that there are worse places than the Crystal Palace for spending a 'appy day. In such lovely weather as we have been treated to lately, the pleasures of the Palace grounds are decidedly great; and inside, the scent of flowers is almost overpowering. Numerous lantern shows are to be given during the next few weeks, and some of our readers might do worse than trifle away an afternoon and evening here.

* * *

WE have before warned our readers about adopting the deposit system. The following clipping speaks for itself:—"A Glasgow Advertisement Swindle.—Vincent Johnson and Leopold Geoffrey Harding, residing at 8, Burnbank Terrace, Glasgow, a fashionable district of the city, yesterday failed to appear at a pleading diet of the Sheriff Criminal Court to answer to a charge of having attempted to defraud by obtaining goods and money on false pretences. A warrant was issued for their apprehension. It appeared that Johnson had styled himself an accountant in Glasgow, and obtained goods from several large firms in the city. Harding varied his callings, and pretended to be a lieutenant in the army and an officer of the navy on leave, also an advertiser in the *Bazaar, Exchange and Mart* and the AMATEUR PHOTOGRAPHER, to the effect that they had rare foreign stamps and a complete photographic outfit to sell, thus inducing persons in all parts of England to send them postal orders, cheques, and stamps for amounts ranging from 5s. to £5. In their rooms at Burnbank Terrace the police found a large number of letters addressed to the men, and containing postal orders from persons replying to their advertisements."

* * *

IN our advertisement pages will be found a notice of the forthcoming "Sandell" Exhibition, to be held at 24, Regent Street, from Monday, 17th, to Saturday, 22nd inst. As the proceeds are to be given to the Photographers' Benevolent Association, we hope many of our readers will take the opportunity of helping their poorer professional brethren by taking tickets. We have plenty to sell, and the price is for the first three days 1s., and for Friday and Saturday 6d.

* * *

THE paper on "The Relation of Art to Photography," commenced in our last issue, was by accident not ascribed to its author, Mr. M. W. Thompstone, who read it before the South Manchester Photographic and Lantern Society.

* * *

THE Stereoscopic Competition Slides are now in the hands of the judge, Mr. W. I. Chadwick, and we shall as soon as possible publish his awards, with criticisms on the slides. As we intend to re-produce some of the winning work, our competitors must have a little patience.

* * *

LONDONERS and visitors to London are often at a loss what to photograph. One vast field both for artistic work and specialistic photography is to be found at Kew Gardens. There is many a pretty little bit to be got, and for those who wish to go in for flower studies the houses present vast possibilities. Permission to photograph may be obtained by writing to the Director, and entrance can be gained by the Victoria Gate, opposite Kew Gardens station, or by the private gate adjoining the Curator's office, after six a.m., from April to October, except on Sundays and Bank Holidays. Photography in the houses is not permitted after noon.

* * *

THE *Morning* has for some little time devoted a column to matters photographic, and lately propounded the following:—

"Extract from the new photographic catechism:—Question: Explain the difference between the 'fuzzies' and the 'focussers.' Answer: It is merely a matter of detail."

* * *

PRESSURE on our space this week compels us to hold over several articles, and notices of apparatus, etc.

* * *

WHILST we are always glad to see visitors, we would remind them that Monday afternoon is the only time which may be depended on for catching us in, and we would ask them to remember that, unless for any very important matter for the current week's issue, we see no visitors on Tuesday. This rule we are compelled to make to enable us to get through the work.

* * *

WE publish this week Mr. Williams' paper on Plate Speeds. We need not, of course, say that this met with considerable opposition from Messrs. Cadett, Cowan, and others. The discussion on the same was adjourned to the 20th inst. We make this statement, and request our readers to remember the old adage, "Hear both sides," and ask them not to jump to hasty conclusions.

The Central Photographic Club.

AS already announced, a meeting of intending members and those interested in the Central Photographic Club will be held on Monday evening next, April 17th, at the Memorial Hall, Farringdon Street, when the chair will be taken at eight o'clock precisely.

The principal object of the meeting will be to receive the report of the Executive Committee appointed on March 6th, to

(1) Select suitable premises.

(2) Decide upon what financial basis the Club should be conducted.

(3) Draw up a set of rules for the government of the Club.

In regard to the first, the Joint Executive Committee immediately appointed a Premises Sub-Committee to seek for suitable premises within a limited area which might fairly be considered central, and, after considerable trouble and investigation, the Sub-Committee recommended the Executive Committee to decide on premises in Fleet Lane, Farringdon Street, as being in every way suitable for the purposes of the Club. The Executive Committee have endorsed the recommendation, and the meeting on Monday next will be asked to adopt it.

As to finance, the Executive Committee unanimously agreed that the Club should be administered and carried on by a limited company, so that the liabilities of members might be restricted to the amount of their annual subscription, the profits, if any, after five per cent. has been paid to the shareholders, being devoted to the benefit of the Club. A considerable proportion of the capital has already been subscribed by the members of the Committee and friends.

After careful consideration, the Committee have adopted the following rules for the government of the Club:—

RULES OF THE CENTRAL PHOTOGRAPHIC CLUB.

1. The title of the Club shall be the Central Photographic Club.
2. The object of the Club is to provide a central meeting-place for those interested in photography where they may enjoy social and technical advantages.

3. All gentlemen interested in photography shall be eligible for membership.

4. The annual subscription for town members shall be £1 1s., and for country members 10s. 6d. For life membership a payment of £10 10s. shall be required. The first 500 members will be admitted without entrance fee. Those joining after that number has been reached shall pay an entrance fee of £1 1s. for town members, and 10s. 6d. for country. Gentlemen residing within a radius of twenty miles from Charing Cross shall be deemed town members.

5. The management of the Club shall be vested in a Committee of twelve, six to form a quorum, consisting of an equal number of shareholders and ordinary members, to be elected by the members in general meeting annually. The Committee shall have power to fill up vacancies during the current year.

6. An Hon. Treasurer and Hon. Secretaries and an Hon. Librarian shall be elected by the members annually in general meeting, and shall be *ex-officio* members of the Committee.

7. Candidates for membership must be proposed and seconded by two members of the Club. The name and address of the candidate, and the names of the proposer and seconder must be sent to the Hon. Secretaries at or before the stated meeting previous to the one at which it is proposed to submit such candidates for election. Such names shall be read by one of the Secretaries to the meeting, and posted on board till the next meeting.

8. The election of members shall be by ballot at any stated meeting of the Club, and a vote of four-fifths of the members present and voting shall be necessary to elect a new member.

9. Every candidate on his election shall be notified in writing with a request for payment of his subscription and entrance fee.

10. No member shall be entitled to use the Club until his subscription for the current year has been paid.

11. The annual subscription shall be payable in advance on the first day of July in each year. Subscriptions to be paid to the Club Company.

12. Members joining the Club before September 30th shall pay the full subscription. After the end of September and before January 31st the payment shall be two-thirds; after the end of January and before May 31st, one-third; the subscription of any member elected after May 31st shall be considered payment for the following year.

13. Any person who shall by any means cease to be a member of the Club shall, nevertheless, remain liable for and shall pay to the Club Company all moneys which at the time may be due from him to the Club.

14. Any member making himself obnoxious to the members of the Club shall be reported to the Committee, who shall investigate, and if necessary, call a special meeting of the Club to discuss the matter; then, if the majority so decide, the offending member shall be expelled the Club, and lose all interest and benefit in it, such decision to be taken by ballot.

15. An annual general meeting of the members shall be held in the first week in July to receive the report of the Committee, to pass the accounts, to appoint officers for the ensuing twelve months, and to elect members of the Committee to supply the places of those retiring. The newly elected officers and members of the Committee shall come into office at the conclusion of such meeting.

16. Ordinary meetings of the members shall be held weekly.

17. The Committee may, whenever they think fit, and they shall on a requisition made in writing by ten members, convene an extraordinary general meeting. Any such requisition shall specify the object of the meeting required, and shall be signed by the members making the same, and shall be delivered to the Secretaries.

18. Every member of the Club shall be entitled to one vote only. The Chairman shall have a casting vote in addition to the vote to which he may be entitled as a member.

Bye-laws for the Club House, and such other rules and regulations as may be found necessary when the Club premises are opened, will be drawn up by the Committee, and submitted to the first general meeting of members for approval.

It is hoped that as many as possible intending members of the Club will attend the meeting on Monday next. The Hon. Secretary *pro tem.* (Mr. Thomas Bedding, 2, York Street, Covent Garden, W.C.) has already received a very large number of applications for membership from all parts of the country, and from both professional and amateur photographers, and the Executive Committee anticipate that the adoption of the above and other recommendations to be made will enable them to approach all classes of photographers in London and country with the certainty of obtaining such a numerical support as will result in the formation of the largest photographic club in the world—a club that shall be at once a home, a rendezvous, and resort for all those interested in photography, whether residing in London or the country—a powerful agency in furthering photographic progress, and a representative force in each of the many branches of modern photography.

Flotsam and Jetsam.

There have been two interesting reminders during the past week of the progress of photography. Sir John Lubbock, lecturing on his personal and political reminiscences at the Working Men's College, said that he was the first person in England to take a photograph. With what has Sir John not had something to do in the course of his career? Then among the crowd of exhibits now constantly going across the herring-pond for the edification and delectation of those who will visit the World's Fair, was sent "the first sun picture of the human countenance ever taken."

This was taken as long ago as 1840 by Professor Draper, of the New York University, and is a photograph of his sister, who is still living, having attained to the good old age of eighty-seven. It was given by the Professor to the late Sir John Herschell, and has been most carefully preserved by the family. The University have now persuaded Sir W. Herschell (not to be confounded with the present Lord Chancellor) to loan the portrait, that it may appear in their exhibit at Chicago. It is all the more interesting inasmuch as it was taken on the roof of one of the University buildings. With the photograph goes a recent portrait of the lady, and a comparison may thus be instituted between photography fifty-three years ago and photography up to date.

This sets one thinking. Great as has been the advance in the photographic art, it has not been so great as was anticipated in the early days, soon after its discovery. Kingsley's "Two Years Ago," which, if we mistake not, was published in 1857, has several references to photography, as many of his admirers may remember. He makes Claude Mellot declare, half in fun, it is true, that it would soon supersede the art of painting.

Of course, he did not quite mean this, and equally, of course, some allowance must be made for his ardent and enthusiastic temperament. He prophesied, and at a time when, as he said, photography could do little more than take "guinea portraits of bearded desperadoes, a nugget in one hand, and a £50 note in the other," that within seven years it would be possible to take sun pictures that would not only give light and shade, but colour.

More than five times seven years have passed since then, and still the secret of colour photography cannot be said to have been discovered, in spite of all that M. Lippmann and others have done. Yet there have been conspicuous triumphs in other directions, and fresh ones are constantly being announced.

Submarine photography, it seems, is the latest thing. It is not yet on the carpet, but it is on the threshold. A writer in *Natural Science* urges that photography in the depths of the sea is perfectly practicable, and the many difficulties that at once suggest themselves are most gallantly met and overthrown—in theory, of course. Special lenses, constructed so as to act through the denser medium of water, can be procured, and the pressure of water at great depths can be overcome, while when natural light fails the electric light, that Aladdin's lamp of science, may be requisitioned. The writer of the article is also ready with suggestions for protecting the sensitive plates from all the injuries that would seem likely to follow from immersion, and altogether makes out a very fair case. It is hardly necessary to point out the aid to scientific investigation that would be thus afforded.

Indeed, a delightful vista of possibilities opens before us from this startling development of photography. We shall soon solve the long-vexed question as to the existence of the sea serpent, when we have our deep-sea cameras perfected, and in place of the ladies of the ballet and the favourite actresses of the day, the latest portraits of lovely nereids and mermaids will fill the windows of photographers, while some of our illustrated magazines will be coming out with interviews with Neptune, accompanied by charming reproductions of photographs of his palace-home far down in the blue depths of the ocean.

Possibilities of another kind rise up too. We all know that photography, even on dry land—*terra cotta,* as a modern Mrs. Malaprop once called it—may have its risks. But imagine an attempt to expose a plate on a hungry shark, or an octopus, or some other uncanny sea monster, and the enterprising photographer, in a diving dress presumably, arranging the creature's pose. It would be easy to pursue the theme. Are we not a little out of our depth though?

The *Times* published an admirable article last week describing at full length the preparations that have been made for the observation of the total solar eclipse on April 15th—16th. Two special expeditions, it seems, have been despatched, one to the West Coast of Africa, just north of the Gambia river, and the other to Brazil, while from America Harvard College has sent a party to Chili, and Professor Schaeberle, from the Lick Observatory, will take up his station there too.

It is interesting to note how important a part photography plays in the preparation for the observations that will be made. To the poor amateur the descriptions of "a 6½ in. equatorial and a 5 in. horizontal photo-heliograph of 40 ft. focus," and of the "6 in. Simm's equatorial of 78 in. focus, lent by the Astronomer-Royal" may well seem crushing—his poor little camera seems so insignificant by comparison.

Yet both are linked together, and both accomplish good and useful work, as much in the case of the enthusiastic amateur, whose careful art gives him many pleasant hours, and as pleasant mementoes of his not too frequent holidays, as in the more delicate and expert work of the scientists, who bring us unhoped-for knowledge from out of solar space, and with their magnificent apparatus are enabled to far outstrip the observers of days gone by.

Great things are hoped from the approaching eclipse, it appears. It is of exceptionally long duration, and occurs at a period of maximum solar activity. Therefore the photographic study of corona may reveal many most useful particulars as to its structure and essential character, the nature and intensity of its light, etc. With so many parties of observation, and the French have sent still another to Senegambia, some valuable results should be obtained.

Photography is not merely showing itself a most useful aid to scientific investigation; it is also helping to build up the language. As witness the following vivid simile from an article in the April *Forum*, by Mr. Frederic Harrison, on "The Decadence of Romance." Mr. Harrison complains that too much civilisation has brought on us monotony and "the deadly chill of culture" by which genius is done to death.

In the same way over-much criticism has given us "the Kodak school of romance, the snap-shots at every-day realism with a hand-camera. We know how it is done. A woman of forty, stout, plain, and dull, sits in an ordinary parlour at a tea-table, near an angular girl with a bad squint. 'Some tea?' said Mary, touching the pot. 'I don't mind,' replied Jane, in a careless tone; 'I am rather tired, and it is a dull day.' 'It is,' said Mary, as her lack-lustre eyes glanced at the murky sky without. 'Another cup?' And so the modern *romance* dribbles on hour by hour, chapter by chapter, volume by volume, recording, as in a phonograph, the minute common place of the average man and woman in perfectly real but entirely common situations. To this ideal level of correctness literary purism has brought romance."

"As in a phonograph," mind, and not "as in a photograph." The simile is a vivid one, but not quite just, for the hand-camera is capable of turning out the very best and most interesting kind of work. Snap-shops from a Kodak need not be common-place. Everything depends upon the artistic insight and the faculty of selection in the man who manipulates the camera. And so, we fancy, with the novelist. Anchorite.

Letters to the Editor.

INSTANTANEOUS SHUTTER.

Sir,—I am extremely obliged to "C. P." for his reply to my enquiry. I now infer that he was referring to a focal-plane shutter all the while, but he spoke of a blind or roller-blind shutter, and I had in my mind one of the many kinds—in front of the lens, between the lens, behind the lens, and opening and closing in different ways. If the expression "focal-plane" had been used it would all have been clear. Your correspondent "Animalculæ" says "he shall have no hesitation now in purchasing the Thornton-Pickard." It does not occur to him that some "one who doesn't know" will wonder which of the several "Thornton-Pickard" he is referring to. He ("Animalculæ") may also mean a focal-plane shutter, or any one of the other six or seven kinds.—Yours, etc.,

One who Doesn't Know.

* * * *

A TOUR IN BELGIUM.

Sir,—Would any of your readers kindly say, in reference to a photographic tour in Belgium and Holland, (1) Would September be a good month? (2) Would the climate be very hot then? (3) Is September usually a fine or wet month? (4) Would the actinism of the light be about equal to that of May in England? (5) Is there any difficulty to be expected at the custom houses?—Yours, etc.,

Lux.

* * * *

TONING SOLIO.

Sir,—I have found the following to be a very good bath for toning Solio paper:—

Phosphate of soda	10 gr.
Chloride of gold	1 gram.
Water	4 oz.

It may be used as soon as made. Toning proceeds very fast, and the prints must be kept always in motion. If the prints are dark enough, quite a rich purple tone can be obtained, and the results have always been highly satisfactory.—Yours, etc.,

Phosphate.

* * *

AN IDEAL PLATE.

Sir,—There is a point about the theory of exposure and development which is not mentioned in the text-books. It can be shown by algebra that a period arrives in the process of exposure when the amounts of bromide of silver affected in the different lights is such that if a negative could be made by dissolving out all the unaffected bromide and retaining all the affected bromide as bromide, such a negative would have its gradations right—would, in fact, be true to nature.

If the negative were made by reducing all the affected bromide to silver the gradations would be wrong, because the opacity of silver is much more than that of its bromide. A true negative could, however, be made by stopping the development when the opacity of the silver reduced is equal to that of all the bromide affected; that is to say, when about two-thirds of the affected bromide has been reduced.

There is no means of knowing when this stage has been reached. Examining the negative by transmitted light will help to get good printing qualities, but that is quite another matter.

Now, if a soluble colouring matter were added to the emulsion to make the opacity of the unexposed plate equal to that of the same plate after complete exposure and development, then there would

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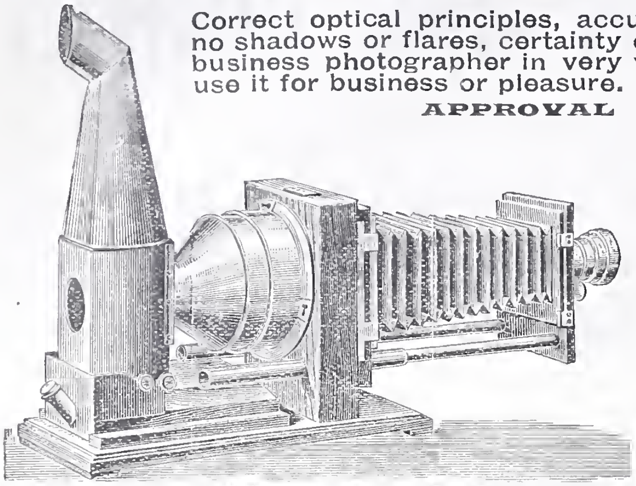

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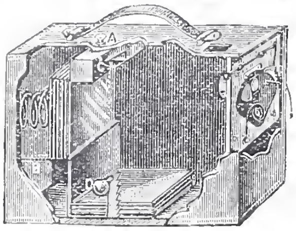

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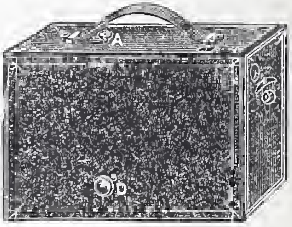

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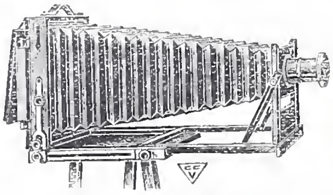

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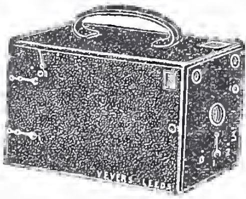

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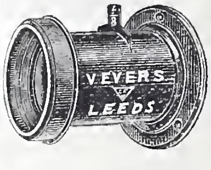

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be no difficulty in knowing when to stop development, for it should be continued till all action had ceased, and we poor amateurs would have only one difficulty to contend with instead of two.—Yours faithfully,
An Amateur.

* * * *

THE WATKINS METER AND ISO. PLATES.

Sir,—When the atmosphere is foggy or even misty, am I correct in stating that with isochromatic plates the exposure is appreciably less than with ordinary plates? If I am right, and assuming that one is working with isochromatic plates, is not Watkins' Exposure Meter useless under such circumstances? Is it not also useless when photographing in the evening, or taking a sunset? and also for interior work, owing to the presence of stained glass?

Allow me to ask Mr. Alfred Watkins through your columns, to issue a roll of isochromatic paper for workers with the isochromatic plates. Also is the standard subject number 100 for isochromatic plates, or is it less?—I am, etc.,
Wm. E. C. White.

* * * *

THE SANDELL PLATE.

Sir,—Although Mr. Pringle has confined his reply to my letter of the 17th ult. to another journal, I think the matter is of such universal interest that it should get directly into the hands of your readers, and you will oblige me by inserting the following contribution to it.

I hasten to reciprocate Mr. Pringle's kindly feelings. Mr. Pringle has been a friend to ourselves, speaking for my Company, and to myself, and I trust he may ever remain so, but there happens sometimes in human experience a period when it is well to be saved from one's friends, and this I have taken to be one of those interesting occasions.

Mr. Pringle expresses regret that I did not attend at the meeting of the Camera Club. Well, I thought the matter was so simple that in the hands of such an expert the subject was quite safe.

Secondly, I dislike the appearance of exploiting at scientific meetings, and, lastly, I did not think it consistent with my *amour propre*, inasmuch as I had some time previously been advised by Mr. Pringle that I should not be considered worthy of the *Club membership*.

Of the first idea I have been altogether disabused, and it is entirely due to Mr. Pringle's handling of the subject that it has been thought desirable to give instruction in the uses and capabilities of the plates by demonstration at the societies.

Mr. Pringle seems to wish to represent my former letter as dealing mainly with opinions. Nothing is further from my desire; I want facts and facts only, and I maintain the facts of the case are so easy of proof as to be within the reach of all.

Mr. Pringle objects to my use of the adjective preposterous. I can only repeat that the idea of stripping the films in practical negative making is preposterous, and consider I was justified in being so emphatic on the point, when a gentleman, Mr. Gregor Grant, who admittedly had received instructions from Mr. Pringle on the proper use of the plates previous to starting on a trip, is reported to have said at a meeting of the West Kent Society that he gave enormous exposures, developed and stripped off the top film. But I understand even then nine good negatives were secured out of twelve, the remaining three being under-exposed.

I take it the latter were the cause of Mr. Grant adopting Mr. Pringle's notion that a little over-exposure produced a failure with the plates.

In discussing the question of rapidity, I contend I am entitled to have from Mr. Pringle some suggestions as to why he should go out of his way to represent the plates as slow in order to release him from any suspicion of being disingenious. Either he must imagine I cannot make a fast emulsion, or must have an idea that the successive coatings interfere with one another.

Mr. Pringle must surely know there is every inducement to put the most rapid emulsion on the surface, for with the increase of rapidity halation is increasingly troublesome in the single film. As a matter of fact, the plate is as rapid as any plate of any make I have ever tested, and I am more than sanguine of soon being able to provide a plate of much greater rapidity still.

Mr. Pringle's assertion at the Camera Club, "I found that in a view with trees in it, the normal exposure to get a good negative on the top film was ten seconds at *f*/32," if unaccompanied by an extempore explanation, was an outrage.

I will here point out that the questionable advantage possessed by the ordinary plate of the supplementary exposure from reflection, which I maintain stupidly called halation, is absent. Why I think the term halation stupid is because it detracts attention from the undue density, and what may be called the inner effect of the reflected rays, when not sufficiently strong, of the angle of reflection is not large enough to produce the halo.

Mr. Pringle in the use of the adjective absurd, in connection with my assertion as to the practically unlimited latitude of the plates, is, I submit, somewhat unscientific. If it is possible to do as I have done, give an exposure on an open landscape of half second and another of one hour with the same stop—and in all probability six hours would have answered equally—is my claim unjustified? I should be glad to know who requires greater latitude! Mr. Pringle says he has not found the plate an absolute cure for halation. I shall esteem it a great favour if he will furnish me with details with the alleged failure, and I will guarantee, if the exposure is within the province of what can be fairly described as practical photography to make a negative free from it.

On the question of quantity of light passing a film, Mr. Pringle appears to give himself entirely away, or I cannot understand his language. He says, "I think under exposure is one of the most certain ways to produce halation." Now, taking it for granted that the halation meant is reflection, and as the reflected rays are only a small percentage of the transmitted, it stands to reason that a large quantity of light has passed the film, even in the case of under-exposure. Then, am I right or wrong in claiming a great advantage of the double film, in cases where one wishes to develop up all that is possible?

Now, on the question of amenability to development. I have not the advantage of the knowledge of the results obtained by the savants referred to, as having "studied the subject." It has been a matter of daily, almost hourly study to me for the past fourteen years, and this is the only way in which I can account for the fact that a weaker development is necessary for a slow plate than for a rapid one; and also for another fact, that a weak and restrained developer with a rapid plate will furnish a finer grain negative than a strong one. Why this? unless it is that the finer grains are more easily reduced.

This, in my opinion, also furnishes the correct answer to the Rev. F. C. Lambert's question as to the appearance or non-appearance of the positive effect in negatives, propounded at the Camera Club the same evening.

Mr. Pringle, I expect, will agree with me that light and heat are only different manifestations of the same natural phenomenon. Now, in sensitising an emulsion heat is as necessary as light is in making a negative. We know the effect of light is up to a certain point to facilitate or render possible the development to maximum density. Beyond that point it renders it more and more difficult, and at last it makes development by any known method an utter impossibility. In other words, the salt of silver is what is termed perfectly solarised.

Then I suggest, the action of light and heat being similar, that in the more highly sensitised emulsions we have an approach to the effects of solarisation, and consequently density is less easy of achievement, as it is well-known to be with the most rapid emulsions. I can assure Mr. Pringle there are many items to be found in the philosophy of a dry-plate maker, which are not to be found in the philosophies in the majority of our hand-books; neither is it fair to expect it. We, as emulsion makers, make thousand of gallons of emulsion of different kinds during the year, whereas our authors may make their few half pints.

In conclusion, I can only beg of Mr. Pringle not to fail to pay a visit to the exhibition which is being held during next week at 24, Regent Street. If he cannot there find that I have more than proved my case to the hilt I shall be surprised.—Yours, etc.,

Thornton Heath, April 10th. J. T. Sandell.

* * *

Varnish for Coated Paper.—Beyersdorff gives following formula as best for coated papers such as our half-tones are printed on, and is used on the Continent for collotypes:—

Borax...	100	gram.
Water...	300	,,
Pulverised white shellac	200	,,
Alcohol	100	,,

Dissolve borax in water, and bring it to a boil; then add shellac with constant stirring until thoroughly dissolved, then remove from fire and continue stirring until half cold; then add the alcohol under constant stirring. If the varnish is too stiff, dilute with equal parts water and alcohol.

Auro-Platino Toning Bath.—Dampen the silver prints, then place in gold bath:

Water	2,880	parts.
Borax	45	,,
Chloride of gold	1	,,

Let them remain until they have turned to a warm brown tone, then wash in clear water one minute, after which place in platinum bath:

Water	2,880	parts.
Citric acid	30	,,
Chloroplatinite of potassium	12	,,
Common salt	48	,,

Until they turn to a purple black tone.

Determination of Plate Speeds.*

By G. F. Williams.

Before commencing my paper, a few words are necessary to explain the reason of my appearance before you this evening, Those of you who read the *British Journal of Photography* may have noticed that on January 27 and February 3 there appeared two articles over my signature, headed, "Determination of Plate Speeds." Immediately following publication, there also appeared a mass of correspondence, some of it of a very violent tone, and most of it irrelevant to the question at issue. To this correspondence I replied briefly, to the effect that I should abide by my experiments; and such was my courage of my own opinions that I offered to submit *everything* to a disinterested jury, and I further offered to repeat any individual experiment such jury might select. To this challenge none of my dissentients have responded. It might be thought that, in making such offers, I would be pretty safe, by reason of the disinclination of any of these parties to try conclusions with me, especially when so wide a chasm separates us in the views we hold of the theory involved in the matter; but, as I was not disposed to allow this subject to rest where it was, it is with full belief that I shall be fairly dealt with at your hands that has prompted me to lay before you an account of *my* "investigations," accompanied by examples. I thereby constitute the London and Provincial Photographic Association my jury, and I shall be glad if you will accord me a patient hearing.

In bringing this subject before you, I am assuming that most present will have read my previous remarks in the *British Journal of Photography* of January 27 and February 3. In case any have not, I will endeavour shortly to outline them.

You may be aware that some three years ago Messrs. Hurter and Driffield published their "Investigations." Beyond creating some surprise in photographic circles, I am not aware that their remarks produced any further effect than what might have been expected from the publication of matter of so distinctly controversial a character. Many of their conclusions were so totally at variance with the preconceived notions of most photographers, including myself, that, like other things, one might have expected the subject would be a nine days' wonder, and then fall into oblivion; but, for reasons best known to themselves, certain manufacturers of dry plates have thought fit to adopt the system introduced by these gentlemen, and have issued boxes of plates marked on the outside with speed numbers in accordance with the method of Messrs. Hurter and Driffield. I, like others, have been a purchaser of these plates. Without recapitulating much that has already been published in my previous articles, suffice it, perhaps, to say I think it is beyond controversy that, if we purchase plates bearing speed numbers according to *any* method or system, we have a right to demand that the goods so sold shall be what they are represented. From the dealers and from the makers direct I purchased many boxes of plates, bearing speed numbers of 37, 80, 95, 100, 135, and 140. I tried a variety of experiments in different ways, to ascertain whether the relative speeds, as indicated on the boxes, were borne out in actual practice, and I finally adopted the method of exposing two competing plates side by side in a stereoscopic camera. I need not dilate upon the accuracy of this method beyond any other known method of competitive camera comparisons of the sensitiveness of different plates. Supposing the possibility of error, the method I adopted of making duplicate, and even triplicate, tests, and thereby reversing the positions of the plates, at once serves to expose any error, and enables one to judge with accuracy any difference in results.

As you will see by the examples I will hand round, the subject was one well calculated to test the rapidity of plates against one another, and very fine shades of extra sensitiveness in one or the other of any given pair of competing plates could be readily observed. I must point out to you where the variations in sensitiveness are chiefly to be detected. The stove you see in the negatives is dead black, and stands within the recess of a dead black grate. You will detect difference, where it exists, in the sensitiveness by closely examining all around these dark parts, and in the relief of ornament of the grate, horse-shoe form of which is visible in some plates and not in others. Another point for the detection of sensitiveness will be found in the detail, or the absence of it, in the clothing hanging in the corner in the shade of the chimney-breast. When examining each pair of negatives, I must ask you to read the explanations written at the foot of each, and also to bear in mind the conditions involved in producing each pair. Since I mounted these examples, I have gone over them and marked in red ink my estimate of the percentage differences in their sensitiveness, together with other remarks, in accordance with my published list of experiments on pages 69 and 79 of the *British Journal of Photography*, copies of which are on the table.

Messrs. Hurter and Driffield have said that I cannot estimate differences of ten per cent. If I tell you that in several instances, in order to check my estimates, I gave the additional exposure to the slower plate, and thereby obtained identical negatives, as far as two different emulsions will yield two similarly exposed negatives, I think you must give me credit for knowing what I am talking about; and I shall leave you to judge of the general accuracy of my estimates, of which a large number are submitted to your inspection.

Now, let me add a few words of explanation of the method of development employed. I have previously stated that the plan on which I proceeded was to give such exposures as would leave me the shadows—even the very deepest shadows round the stove—clear up to the end of prolonged development. The plates were developed by the formulæ of the manufacturers, and development was, in every instance, carried on until no further detail would come. Any attempt to ascertain differences of sensitiveness by developing for any arbitrary length of time must, in my opinion, result in unfairness to one or other of the plates under trial, and especially so if they are of different makes. I maintain that by the treatment I adopted can we alone discriminate differences of sensitiveness between competitive plates without favouring or prejudicing either one or another. If, with a given exposure of identical duration for a pair, one plate shows, under prolonged development, greater detail in deep shadow, I should certainly say that plate is the more rapid of the two. If I verify this result by making a repeat, or yet a third test, no room for doubt exists. I must point out in connection with this, that if we expose so as to get a pair of *fully* exposed plates, on development the pair, even if of different makes and sensitiveness, will frequently appear almost identical, and I must insist that full exposures or over-exposures are no tests whatever of the rapidities of plates. In all experiments of this class some little heed must be given to the thickness or thinness of the coating, which does influence the result, but least of all in those parts the least exposed, viz., in the deepest shadows.

Judging from the tone of the correspondence I have alluded to as following my original articles, one might imagine that when I wrote them I had sat down with the deliberate intention of demolishing the Hurter-Driffield theory, or that I had some especial grudge against plates "speeded" in accordance with that method. As a matter of fact, I had no such idea, and I disclaim any intention other than that of putting to the test of actual use the plate so marked, to ascertain whether they bore out the theory. This they failed to do; and I am left to adopt either of two conclusions:—

(*a*) If these plates had ever been submitted to examination in an instrument of precision, such as we are led to believe the Hurter-Driffield modification of Bunsen's photometer is, then I say, if the system is right, the plates are wrong, and the examiners either do not understand the system or they have blundered.

(*b*) If, on the other hand, these plates have been accurately examined and "speeded" by the system, then the system is wrong, for the plates most certainly are incorrectly marked, and do not carry out the system.

I have already alluded to the tone of the correspondence. I don't know that I should have noticed it but that the damning admissions made by one of the writers affords me the opportunity to expose what is either gross ignorance or a wilful perversion of facts. This brings me to another branch of my subject not previously dealt with.

Just let me read you two extracts from letters already published. The first is from a letter in *Photography*, 26th January last, page 63, and is signed "Platemaker." He says:—

"So little does the question of daylight *versus* candle-light come into practical effect that Mr. Driffield tells me that even ortho plates, as far as he is able to observe, are correctly read by the candle for ordinary daylight exposures."

The next is from a letter in the *British Journal of Photography*, February 10th last, page 94, and is signed by James Cadett. He says:—

"I now come to the candle question. It is manifest that, provided that all makes of plates obey the same constant in the relative sensitiveness to candle-light and daylight, it does not matter a fig what the constant may be. Do plates obey that constant generally speaking? All that I can say is this, that, after hundreds of tests, neither Messrs. Hunter and Driffield, Mr. A. Cowan, nor myself are able to say that plates vary in this respect. Even orthochromatic plates for ordinary landscape work obey the same constant very well, though, of course, it is easy to see that under certain conditions of screen and light such plates would require a different constant."

Now, gentlemen, I am not quite so intent upon pointing out to you the strong family likeness that exists in these two letters (which may possibly be the result of accident), as I am anxious to inform you that the statements there made are absolutely incorrect and untrue so far as orthochromatic plates are concerned. Whilst I am sorry that such erroneous dogma should get publicity, I feel compelled to adopt the only course open to me, which is that of giving it a deliberate contradiction, and now I am going to prove it to you.

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* Read before the London and Prov. Phot. Assoc.

The pair of specimens (mounted on opal glass to make them very easily judged) which I shall place in the Chairman's hands were produced in the following manner. Taking a box of "ordinary" plates and another of "isochromatic medium" plates, we shall find their rapidities to daylight very nearly equal, and these will enable us to make a most conclusive experiment. I cut two plates down the centre, and take half of each to an experiment. I place a simple graded screen in an ordinary printing frame, and put half an "ordinary" plate and half an "isochromatic" plate thereon, and expose briefly to usual daylight at midday. The result of this exposure, developed to completion, will be found on the right hand of the specimen, and is marked "*daylight*." You will probably agree with me that their sensitiveness to daylight as read by this means will be about two points in favour of the isochromatic plate, viewing the densities as transparencies.

I then take the other two halves of these plates, and place them just as before, but instead of daylight I submit them to candle-light. As a matter of fact, the pair at the left hand had ten C.M. seconds. You will see that even ten C.M.S. impress the "iso" plate to such an extent as to reveal the last grade of the screen (16) with great force, whilst the "ordinary" plate responds in a remarkably feeble manner. A longer exposure, such as fifteen C.M.S. or twenty C.M.S., will give you a better reading on the "ordinary" plate; but so sensitive are the "iso" plates to candle-light that great density results up to the full scale of the screen, and the comparative readings are valueless. As it is, and viewing these results by transmitted light, I think you will allow that there are from ten to twelve points in favour of the "iso" plate, and to verify this the Chairman shall be at liberty to cut the specimens off the opal glass after they have been all round, and then compare the relative gradations. Viewed by reflected light, the difference is even greater.

Now, gentlemen, how do I find it? On the one hand look at the two letters of "Platemaker" and Jas. Cadett, and, on the other hand, weigh these experiments! Please accept my assurances that these experiments have been repeated over and over again, and always with a like result. Do you find that ordinary and isochromatic plates obey the same constant—the candle, or do you think with me that any one who could be rash enough to make such an assertion must surely have forgotten the very *raison d'etre* of isochromatic plates?

If I needed confirmation of the results I place before you, I need but refer you to an article bearing strongly on this very subject, by Mr. Debenham, and you will find his experiments recorded on the very same page of the *British Journal of Photography* (page 69) as my own. As this page is before you, please refer to Mr. Debenham's figures. He gives you for camera exposures with daylight, "ordinary" and "isochromatic instantaneous," equal periods; but for lamp-light you will see he fixes the rapidity of the "isochromatic" plate at no less that *eight times* that of the ordinary!

With no intention of either attacking the system nor yet of interfering with any man's trade, I repeat that my object has been solely to ascertain whether and how far the theory and the practice of determining the speed of plates would accord, and in the alternative as to whether the theory could be of any assistance (or otherwise) to practical photography. If time permitted, I should like to have read to you a leader from *Photography*, signed "A. P.," and dated March 2nd. As it is, I must content myself with a short excerpt therefrom. Alluding to Messrs. Hurter and Driffield, the writer says:—

". . . . If they mean that, after all, we can materially control our practical results by controlling the developer and the following operations, then no more need be said; but, with their writings before us, we must say that it is by no means clear what they do mean in the matter."

As I have not found that the theory of these gentlemen has been borne out by the plates issued in conformity with their system, I decided to place my findings on record; hence all this storm, and hence, also, my appearance before you this evening, which I determined upon even if it involved further encounter with my cavillers, or entailed a recital of the tenets of my photographic creed.

I trust that the subject may have interested you sufficiently to induce discussion whereby we may gain photographic knowledge, and endeavour to arrive at perfection and the truth.

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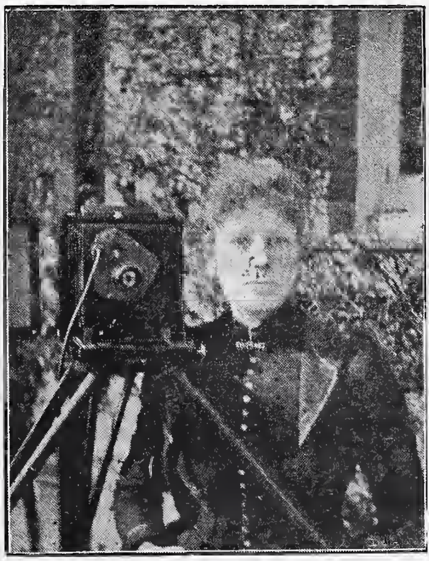
Dr. Andresen's Developers and Chemicals.—Messrs Sharp and Hitchmough, of Dale Street, Liverpool, and Messrs Mawson and Swan of Mosley Street, Newcastle-on-Tyne, have been appointed agents for the above, for their surrounding districts.

How to take One's Own Portrait.

By T. Perkins.

It may interest some of the readers of the Amateur Photographer, especially those of the gentler sex, to know how they can take their own portraits, not in the haphazard manner in which the attempt is sometimes made by simply sitting down in a chair opposite the camera and discharging the shutter by means of a pneumatic apparatus worked by a long tube, for such portraits are satisfactory only by chance, as nothing can be done in the way of posing, arranging draperies, and so forth. I send for the Editor's inspection a portrait which my wife took of herself, and will briefly describe the manner in which the negative was produced.

On the afternoon of March 22nd, about half-past two, she said to me, "Now that the light is so good I should like to make another attempt at taking myself; perhaps I shall get a better result than I obtained last autumn." To which I answered, "If a carte-sized picture will satisfy you, there are some Paget xxxxx plates left, and you had better use the Wray 5 by 4 doublet, which works at *f*/5·6, and is, therefore, twice as rapid as the R R you used last year." So a toilet-glass and table were brought from a bedroom into the garden and arranged so that the plane of the glass was vertical and almost edgeways to the sun, which was shining at the time, but turned a little so that no actual sunlight fell on the reflecting surface; the camera was then placed in front of the glass, and the sitter first focussed the image of the camera in the glass, arranging camera and glass so that there should be space for her own figure beside it; next she inserted the back, set the shutter (a Caldwell), drew the slide, and kneeling down posed herself so that the reflected image pleased her, and then pressed the ball and the exposure was made.



There are a few points connected with this plan of self-portraiture worth notice.

It is necessary for the best results not to have a bright sky behind either the sitter or the looking-glass. In the case described there was the wall of the house behind the sitter and some shrubs and trees at a distance of about 30 ft. behind the glass. Again, a good light and rapid plates are requisite, as, of course, a certain percentage of the light, possibly about 35 per cent., is lost by reflection. A shutter, of course, is indispensable, and one that is not too rapid is desirable. One that has no moving part visible is the best, as the shutter itself is photographed. On a former occasion a drop-shutter was used and the motion of the drop was plainly shown in the negative, the sides of it were perfectly sharp, but the bottom of it faded away softly, showing to what extent it had moved while the lens was uncovered.

The one great advantage of proceeding in this manner is that the sitter can judge from looking at the glass the appearance that the finished picture will have in the matter of expression and pose, and so will be far more likely to be satisfied with the result than when the picture is taken by someone else in the ordinary way.

On the Theory and Practice of Intensification.

BY J. H. BALDOCK, F.C.S.

(*Continued from page* 237.)

WE pass now to the second division of our subject, *i.e.*, intensification without previous bleaching, and for this purpose several chemicals are used, *e.g.*, lead, uranium, gold, platinum, biniodide mercury, and a solution made by the Platinotype Co., called the "Perfect Intensifier."

In using lead several precautions have to be taken, and as it is a troublesome process, and is moreover liable to cause fog, it is but seldom used. Its chemistry depends on the formation of the ferrocyanide of lead and silver, by reduction of the ferricyanide by metallic silver when the negative is treated with the following :—

Lead nitrate	20 gr.
Potass. ferricyanide (clean)	30 „
Distilled water	1 oz.

Dissolve, filter, and acidulate with acetic acid. But as the ferrocyanide of lead and silver are *white*, they have to be blackened, after *very thorough* washing, with a dilute solution of ammonium sulphide. the first reaction being as follows :—

$$2Ag_2+2Pb_3Fe_2(CN)_2=Ag_4Fe(CN)_6+3Pb_2Fe(CN)_6,$$

the *white ferrocyanides* afterwards becoming the *black sulphides*.

Instead of the ammonium sulphide, which is a very nauseous smelling body, and not an advisable adjunct to a dark-room, one of the potassium chromates may be used, in which case we obtain, instead of the black colour, a *red* one if the dichromate is employed, and a *yellow* one if the chromate is used.

With the uranium intensifier an analogous action takes place, only that as the uranic ferrocyanide is of a dark brown or chocolate colour, the subsequent application of a darkening agent is in this case unnecessary.

The solutions suitable for the purpose are those now commonly employed for producing warm tones on bromide paper, and are as follows :—

No. 1.

Uranium nitrate	20 gr.
Acetic acid	½ oz.
Water up to	10 „

Dissolve.

No. 2.

Potassium ferricyanide (clean)	20 gr.
Acetic acid	½ oz.
Water up to	10 „

Dissolve.

Mix these two solutions in equal proportions, and let the *very thoroughly* washed negative soak in it till the desired colour is attained. Should the action go on too far, a *careful* application of a *weak* solution of ammonium carbonate will weaken it, care being taken not to use a strong solution or allow it to act too long, or the image may disappear altogether.

The next intensifier is simplicity itself. A solution is carefully prepared as follows :—

Mercuric chloride	1 dr.
Potassic iodide	3 „
Distilled water	12 oz.

Dissolve.

The quantity of iodide being *just exactly sufficient* to re-dissolve the brilliant scarlet precipitate first thrown down. Into this solution the negative, first well soaked, is placed, until the desired effect is attained, after which it is well washed. Objections, it is true, have been urged against this method, in that the image resulting from its use is, or may be, subsequently affected by the action of light.

Similar objections have been raised in regard to the uranium process, but we believe the supposed effects have been, in both cases, exaggerated.

In the case of gold and platinum the change is of the simplest character, one or other of these metals being substituted for the original silver, according to the following equations :—

Gold ... $3Ag_2+2AuCl_3=Au_2+6AgCl$
Platinum ... $2Ag_2+PtCl_4=Pt+4AgCl$

The last intensifier in the second division is the "Perfect Intensifier" of the Platinotype Co.; the composition of this is, of course, a secret, but Captain Abney states that it contains mercuric chloride and a salt of platinum. We can speak from actual experience of the excellence of this intensifier, and also as to the easy and cleanly way in which it can be used. The process is simplicity itself. The first thing to do is to soak the plate in alum solution acidulated with hydrochloric acid, for the purpose as previously explained, of removing all traces of hypo. Wash well, and immerse in the intensifier, somewhat diluted with water, until the desired effect is obtained. The action, quoting Captain Abney again, is gradual and effective, and seems to be unaltered by time.

We now come to the third division of our subject, *i.e.*, intensification by re-development. In this, as in all previous cases, the first step consists in the thorough removal of all traces of hypo by means of the acidulated solution of alum and thorough washing. The negative is then bleached in an aqueous solution, cold and saturated, of mercuric chloride, to each ounce of which two or three minims of strong hydrochloric acid have been added ; this is preferable to employing a solution of mercuric chloride with potassic bromide or ammonium chloride, as is frequently done). When thoroughly bleached and well washed, the negative may be developed after the manner of a newly exposed plate by most of the developers in common use. We have not had time to try them all, but may say that amidol appears to give a slight increase of density, is clean in use, and gives a clear and quick-printing negative. Hydroquinone gives greater density, is also easy and clean to use, and produces a clear, good printing negative. In one case in which we tried it, and accidentally left the negative in too long, we got the orange hydroquinone stain, exactly as would have happened to a recently-exposed and newly-developed plate.

But perhaps the best method is that of the ferrous-oxalate development, which is strongly recommended by Prof. Meldola, Chapman Jones, and others. In the first place it is simple, and then again a considerable increase of density is obtained, because all the silver and mercury present in the film is left behind in the metallic state, and lastly, like the sodium sulphite method, it can be repeated over and over again till the necessary opacity is obtained.

The solution used should be 1 part of the saturated solution of ferrous sulphate to 6 parts of the saturated solution of potassium oxalate, and it is essential that both solutions should be acid. Sulphuric, acetic, citric, or oxalic acid may be employed for this purpose, and 3 or 4 parts of water. No bromide is required.

The previously bleached negative is allowed to soak in this till the image is blackened right through to the back, and is then well washed. It is desirable that the first washing waters should be acidified with hydrochloric or acetic acid (as is done in developing bromide paper) to prevent the precipitation of any iron salt, or lime from the water.

The reaction which takes place here may be represented by the following equations :—

$$1.—\overbrace{2AgCl}^{\text{Silver Chloride.}}+\overbrace{2FeC_2O_4}^{\text{Ferrous Oxalate.}}+\overbrace{K_2C_2O_4}^{\text{Potassium Oxalate.}}=\overbrace{Ag_2}^{\text{Silver.}}+\overbrace{Fe_2(C_2O_4)_3}^{\text{Ferric Oxalate.}}+\overbrace{2KCl.}^{\text{Potassium Chloride.}}$$

$$2.—\overbrace{Hg_2Cl_2}^{\text{Mercurous Chloride.}}+\overbrace{2FeC_2O_4}^{\text{Ferrous Oxalate.}}+\overbrace{K_2C_2O_4}^{\text{Potassium Oxalate.}}=\overbrace{2Hg}^{\text{Mercury.}}+\overbrace{Fe_2(C_2O_4)_3}^{\text{Ferric Oxalate.}}+\overbrace{2\,KCl.}^{\text{Potassium Chloride.}}$$

We have thus endeavoured, so far as the time at our disposal will allow, to pass in somewhat hurried review some of the principal processes employed in the intensification of negatives and to indicate the chemical changes involved in these processes, and it is in such work as this that a knowledge of chemistry comes in useful for the purpose of teaching us not only what to do, but why we do it, and to this end we hope the paper we have had the honour and pleasure of laying before you may have contributed.

* * *

Gosport.—The first outing on Easter Monday passed off very successfully in beautiful spring weather. The party, numbering about twenty, visited Rogate and Midhurst, and in this interesting and picturesque neighbourhood numerous negatives were obtained.

Hackney.—On 4th inst. Mr. F. W. Gosling presiding. Members' work shown, Mr. Dean and Mr. Nunn. Question, "Is there a limit to length of time between printing and developing the platino-paper, cold process, without deterioration." Reply, "It is always advisable to develop at once ; paper absorbs moisture, even when under macintosh the edges will. Undeveloped prints were put away for six, four, and two months, and recent, and although all care was taken, the last only were good. When the paper is dry it curls film side outwards, and when damp, the opposite. It is not generally known that if the negative be very thin indeed a good print can be obtained by printing under light blue glass ; also if a print be very much over-exposed, so that all details are out, a good result comes by fixing in the acid bath without developing." Question, "What is the relative exposure between limelight and daylight portraiture ?" Reply, "For portraiture the light must be diffused, either by several lights or white paper reflectors, hence limelight is not satisfactory. Magnesium ribbon for high lights and gas light for shades recommended." Mr. Dean then read Mr. Dawson's paper on "Photogravure"

The Relation of Art to Photography.

By M. W. Thompstone.

(*Continued from page* 234.)

A great deal has been said and written about the legitimacy of printing clouds in a picture from a second negative. Now what objection should there be to a photographer adding clouds to his picture if he thinks it can be improved by so doing, just as much as a painter will very often leave out or tone down some objectionable subject to increase the artistic effect of his work, and why should not a photographer be allowed just as much liberty to improve his work by whatever means he pleases?

Turner very seldom painted the skies to his pictures as they existed at the time. He painted in the landscape. Most of them were studied from the end of Margate jetty, and added to whatever picture he thought they would suit.

Constable's works will also well repay a student for their magnificent cloud effects.

Chiaroscuro.—This word is derived from the Italian and means light-dark. Mr. H. P. Robinson, in his "Pictorial Photography," defines the objects of chiaroscuro as follows: "First, to give a pleasing general effect to the whole picture by dividing the space into masses of light and shade, giving breadth of effect, and preventing that confusion and perplexity incident to the eye being attracted by numerous parts of equal importance at the same time. Secondly, to place before the spectator at once, the principal object represented, so that the eye may first see it, and be gradually and insensibly led to examine the whole picture; to keep parts in obscurity, and value. And thirdly to aid the sentiment and expression of the picture."

Rembrandt's pictures are peculiar on account of the arrangement of light and shade. I have here one or two very good examples of the beautiful effects caused by a judicious arrangement of light and shade. In this portrait of Rembrandt, which is also typical of the method employed by the old masters, the face is brilliantly lighted, while all the rest, with the exception of the velvet cap, which is made dark as a contrast to the face, is in a half light.

Turner also follows the same lines, and as a proof that this is correct to nature, the next time you have the chance notice any subject with a dark object in the foreground and a strong light behind—for instance, a group of trees with the sun behind—and you will find that the darkest darks of the trees are contrasted against the highest light. It has been proved that the old Venetian painters usually covered the paper with darkest shadow to the extent of about a quarter, another quarter to the lighter parts and the other half was given up to half shadow. As I have said before chiaroscuro is one of the chief points to be considered in the selection of a picture, for if this be not well chosen, the effect produced is anything but beautiful.

The light and shade should always be used to display the leading object most effectively, and to link all the various parts together so that it shall not become too prominent; and here comes in a motto that every photographer as well as artist should lay to heart, viz. "that art should conceal art."

The weakest part in a picture is the centre, as neither the principal object nor the chief light should be situated there. Neither should light, speaking with regard to the general mass of light in spreading through the picture, be allowed to form either vertical or horizontal lines, or both sides of a picture should not be dark and the centre light, neither should the top and bottom be dark and the centre light; the same argument reversed applies to shadow.

In this portrait of Rembrandt's, the face, the chief subject of the picture, is the lightest, and is also situated above the centre. The unity of light and shade is also perfect; in it no single particle of light is separated from the others, but is connected or repeated in one form or another. There must be a sort of wholesale symmetry, but symmetry of detail must be avoided.

A photographer has not the same command over the light and shade in a landscape that a painter has, but still the effects change so rapidly that it is easy for him to choose the one that suits his fancy best.

It is always a difficult matter to persuade photographers to keep the horizon low down and trust more to the sky for an effect, for with the ample means at our disposal of rendering detail, very beautiful effects can be obtained with the simplest materials.

Adopt what arrangement of chiaroscuro you like for a picture; it is absolutely necessary that there should be breadth of effect, for without this it will never stand looking at with pleasure.

If photographers would take a little more trouble and notice the effect produced on a subject by various lights and at different times of the day, very much better work would be produced and less failures recorded. How many scenes of no interest in themselves may frequently be made to delight the eye from their being productive of breadth!

Painters as a rule find it very difficult to obtain breadth with detail, but it has been attained with great perfection by some of the great masters.

But this should not trouble a photographer, for extreme definition is quite in unison with the most tender atmospheric gradations.

The detail of nature need never be sacrificed for the sake of representing atmosphere. If definition and atmosphere exist together in the subject to be photographed they should appear in the picture, or something is wrong. It may be in the developer, exposure, etc., or the photographer has attempted to do with one negative instead of taking two or three and resorting to combination printing.

A few words as regards the value of the various colours. We all know that it is most difficult to give a true value to the different colours by means of photography, on account of the ratio of the actinic power varying with each shade; for instance, the actinic power of blue is greater than yellow, and yellow than red; these are reckoned the primary colours from which all the others can be produced.

Pure colours appear very rarely in nature, and then only in the foreground, for, on account of the dispersive powers of the atmosphere, they become very rapidly modified. An exception to this rule is found in white, but even that has a tendency to turn a shade yellower. Pure black, on account of its change to a lighter shade, ought only to be used in the foreground of a picture, but white may be used anywhere. There are some lines made on this by Fresnoy in his "Art of Painting." He says:—

> "White, when it shines with unstained lustre clear,
> May bear an object back or bring it near.
> Aided by Black, it to the front aspires;
> That aid withdrawn it distantly retires,
> But Black unmixed, of darkest midnight hue,
> Still calls each object nearer to the view."

As green is the prevailing colour of a landscape, more attention should be paid to it than to any other, and, as a fact, is very often not as intense as it appears; a large amount of red enters into its composition, as also does blue, so it behoves us to be careful as to the amount of light reflected by the various greens.

Photography is unable to overcome all difficulties in the way of giving due proportion to the different colours, but a lot may be effected in the after operations of printing, retouching, etc.; still, it is essential that the negative be made as perfect as it is possible in the first instance.

This subject, with regard to value, can easily be made a very interesting one by itself, and in the *Photographic Quarterly* for October, 1890, there is a very good article on it by the Hon. J. G. P. Vereker.

Another way by which a photographer can improve his work is by always having some object in view.

Before an artist commences a picture, he has settled in his mind what the subject is to be; it may be a landscape or seascape, portrait or group, but whichever it is he has some idea as to what he intends to produce. This we very seldom find with regard to the photographer; he takes his camera out on a fine day or on his holdays, he exposes first on this thing, then on that, no matter whether it is worth a plate or not; he thus accumulates a mass of mixed negatives, having hardly any connection between each, and of no use except as a reminiscence of the place. But how different would have been the result if he had had some definite object in view in all his wanderings to and fro.

A poem, such as Goldsmith's "Deserted Village," might be chosen, or an endeavour made to secure a collection comprising the old ruined abbeys of England. Another might attempt to illustrate a novel by one of our best authors, and many others will suggest themselves to those seeking after the same; there is no lack of subjects.

Here are a few lines taken from Tennyson's "The Princess," which suggests any number:—

> "So I and some went out to these; we climb'd
> The slope to Vivian's place, and turning saw
> The happy valleys, half in light and half
> Far shadowing from the west, a land of peace;
> Grey halls alone among their massive groves;
> Trim hamlets; here and there a rustic tower
> Half lost in belts of hope and breadths of wheat;
> The shimmering glimpses of a stream, the seas;
> A red sail, or a white; and far beyond,
> Imagined more than seen, the skirts of France."

But I must now close this short paper, in which I have endeavoured to show you how our work may be improved by the consideration of some of the fundamental rules of art without going into the technicalities of the same; these you can get from any of the writings of such men as Sir Joshua Reynolds, Burnet, Ruskin, etc., but all of us have not the time or opportunity for much study, and to these such books as "Pictorial Photography," "Picture Making by Photography," etc., by H. P. Robinson, and "Studies in Photography," by John Andrews, B.A., are all within reach, and a careful study of these is better than none at all.

Naturalistic Photography.*

BY P. H. EMERSON, B.A., M.B. (Cantab.)

MR. PRESIDENT AND GENTLEMEN—

Two years ago I withdrew my book "Naturalistic Photography," and I owe you some explanation for so doing. My researches into the subject of vision and perspective drawing were mainly responsible for that act, and if you will bear with me for a little I will endeavour to explain my position.

When I first took up photography I was told by the whole photographic world (including optical experts)—told by all, without exception—that if the photographic observer closed one eye and placed the other eye at the focal distance of the lens used in taking the photograph under observation, he would see the picture "true to Nature."

I felt all along that such was *not* the case, and maintained the "sharp" or any other photograph when viewed under such conditions was not true to Nature—to Nature as the *two eyes* see it, and hence arose a long and inky warfare.

Gentlemen, it was in this as in many other disputes—we were both right and we were both wrong.

The opticians were right from the mathematical standpoint, and I was right from the physiological and psychological standpoints, and so it was evident there were two truths to Nature—the perspective or mathematical truth and the psychological or visual truth. After many practical experiments I found the closest truth to Nature IN PHOTOGRAPHY (*from the physiological point of view*) was to be obtained by throwing the background of the picture out of focus to an extent which did not produce *destruction* of structure—that was my limit; the principal object of the picture being either sharp or just out of the "sharp." This convention I termed the naturalistic method of focussing, and pointed out it had no connection with a general *soft sharpness* such as that produced by Mrs. Cameron's badly corrected "Jamin," or by pinholes, or by throwing the *whole* of the picture out of focus—practices all inferior from the naturalistic standpoint, in my opinion, to my method—which is a deliberate and conscious act to be modified according to circumstances, and no haphazard "dodge" like the "soft sharpness" or "bastard naturalism," as my friend Mr. Balfour calls the more mechanical "soft-sharp" method.

This naturalistic method I practised and advocated and found later on by further research that it was justified by physiology. Well, gentlemen, all this led to a great storm in a tea-cup, and disputes arose as to how we did see with two eyes and what was really *truth to Nature* from the visual standpoint. In the course of this argument I was pleased to find a broad-minded optician taking an interest in these matters. I refer to my friend Mr. Dallmeyer, whose acquaintance I did not make till after the publication of my book, and whose knowledge in practical optics has enabled him to make a lens of my conception (*i.e.*, the tele-photo lens), a lens which to my mind is the most powerful tool yet put into the hands of the decorative photographer, but still a lens that I hope is only a step to a better.

Well, gentlemen, all this argument—though warm at times—did good, and set many thinking, and at last I was lucky enough to drop upon the key to the solution, which key I published in April, 1890, in a number of *Photography*. It was a short paper entitled "A Note on Naturalistic Focussing." My friend, Mr. Goodall, who has always been interested in the practice of photography, was told by me of this little research, and immediately he took it up enthusiastically and suggested some new proofs and experiments, and together we published the results in a pamphlet entitled, "Perspective Drawing and Vision," a pamphlet that created another storm in the teacup, but a pamphlet whose propositions, I venture to say, still remain unshaken, though the Royal Astronomer at Sydney was invited to a public argument in the *Photographic News*—a challenge still open to him or any other person of physiological or psychological training: and here I may say Dr. Griffiths and Mr. Sutcliffe were the only two photographers who were acute enough to see and acknowledge in public the force of the pamphlet.

Well, gentlemen, from this pamphlet it was self-evident to me that there is no *absolute* truth to Nature from the visual standpoint, for as each man's sight is different the only absolute truth to Nature for each man is his own view of her (though certain broad features remain true to all). On the other hand, from the mathematical standpoint or perspective drawing standpoint, there is an absolute standard such as the sharp photograph taken with rectilinear and otherwise duly corrected lenses.

Now, gentlemen, I will quote you a paragraph from a text-book on Psychology, published only last year; a passage which shows how this view is now so far accepted that it has entered psychological text-books for students. The quotation is:—

"Almost all the VISIBLE shapes of things are what we call perspective *distortions*. Square table tops constantly present two acute and two obtuse angles, circles drawn on our wall-papers show ellipses, etc., and the transitions from one to another of these altering forms are infinite and continual."

That, gentlemen, is the position. Whence it is evident that NO photograph gives things as we *see them* with our two eyes, though some photographs give results NEARER to what we see than others, and those are the naturalistic photographs.

The next question I put to myself was:—How true must the photograph be so that it may be considered naturalistic? And this gave me much trouble, but at last I think I can offer the solution, which is,—It must be true in fundamentals to the point of *illusion*. Thus a man's boots must not be twice as big as his head, and so on with everything.

So, gentlemen, what I advocate is truth to the point of illusion (for I am not considering to-night scientific photographs but decorative or pictorial photographs). And I may now say the methods of practice I advised in "Naturalistic Photography" I still advise, and the artists I held up for admiration in that work I still hold up as the best exemplars of their various crafts, but my art philosophy is different, as I shall show you to-night, and lastly, I do not consider photography an *art*, but regard it as a mechanical (I say "*mechanical*" advisedly) process, whose results are sometimes more beautiful than art, but are never art, just as Nature is often more beautiful than art—just as the beautiful Japanese *lilium auratum* surpasses the painted lily—yet is the real lily not art but Nature. So the photograph is not art but a mechanically recorded reflection of Nature. To state this matter more clearly I have adopted a genealogical form of presentation.

NATURE.

(The fountain-head of sensuous impressions, but not necessarily of *ideas*.)

One | branch.

PHOTOGRAPHY.

(A cross between *Nature* and a *machine*.)

Two | branches.

Realism.	*Naturalism.*
(The sharp photograph—wherein sentiment, illusion, and decoration are disregarded; merely a register of bald facts mathematically true.)	(The more or less correct reflection of Nature, wherein truth of sentiment, illusion of truth (so far as possible) and decoration are of first importance.)

From which it is self-evident that I believe there is no true realism or naturalism in the arts proper but only in *photography*: for TRUE realism and naturalism are *impersonal*—the results of a mechanical process which photography logically is, because under the same *physical* conditions the same *results* will always follow. Place the camera under certain physical conditions and the same result will always follow, which is *not* the case with art, which is *personal*; indeed, the personal element in real art is paramount and all-pervading. Thus art is a cross between *Man* and Nature, or—

ART.

(Cross between Man and Nature—no machine intervening.)

Two | branches.

Impressionism.	*Idealism.*
(Which is a purely *personal* vision of Nature, as thus an impressionist may paint *sharply* or may paint colours wrongly from defect of vision: as does Monet).	(Cases in which the imagination is used; that is the combining of several ideals into one harmonious whole. The idealist may transcend *known* Nature and so the vase is produced).

In brief, what I submit is that all *artists* who do not use photography, and such are bastards) are either impressionists or idealists, and that logically they *cannot* be either realists or naturalists, for they can never be truly *impersonal*. M. Zola *calls* himself a "naturalist," but he is not, as Mr. Thomas Hardy has pointed out: were I to classify him it would be as a morbid impressionist. On the other hand, M. Viaud, a far more sensitive artist, has been called a "naturalist;" he has publicly denied it, calling himself an "idealist," which he is not—he is an impressionist; morbid too in his way. On the other hand, Theocritus I should call a sane impressionist, and Milton an idealist,—or to put it into paint, Mr. Whistler is a sane impressionist and Rossetti an idealist.

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* Read before the P. S. G. B.

And there can be insane impressionists and idealists, as lunacy students know, as well as mediocre, mattoid impressionists, as was the late Richard Jeffries in literature, and (say) Prout in paint.

But still there is a link binding Nature, Art, and Photography together—a touch of kinship—and that is *decoration*. The artist admires Nature when she "sings in harmony," *i.e.*, is *decorative;* he admires the photograph when it "sings in harmony, *i.e.*, is *decorative*, and he admires works of art when they "sing in harmony," *i.e.*, are *decorative*.

Thus photographs must be *decorative* to appeal to artists, but that does not make them *art* any more than Nature is art when she is decorative. In a word, art is the personal expression of a personal vision of Nature or ideal. A decorative photograph is a mechanical reflection of Nature when she "sings in tune," the good photographer requiring to know when Nature does "sing in tune." In a word he must have true perception of the beautiful to succeed, after that he is merely the starter of a machine.

If you will allow me to digress for a moment let me here make a reservation. It is that it matters not, for *merely* decorative purposes, what lens be used or how it be used, what exposure be given or how it be given, what developer be used or how it be used, what printing method be adopted or how it be handled, *provided*, always, the result be *decorative*, for no photograph can be said to have any "art qualities" (this does not allow it can be art) without being first of all decorative—a harmonious whole. That is the first quality which differentiates the few photographs from the thousand. But there are higher qualities, degrees of interest and distinction, as it were, and to possess these it must be illusively true, and fine in its *natural* sentiment, as well as decorative; in a word "naturalistic." And even Mr. Whistler (a far greater artist than philosopher) gives himself away upon this very point in what I years ago called his brilliant but illogical "Ten o'clock," though such an acute critic as Mr. Henley has called this lecture the greatest art writing of the century, which I submit it is not. In this "Ten o'clock" Mr. Whistler advocates throughout his work art for art's sake (*i.e.*, pure decoration) as the be-all and end-all of art. But I submit that he gives his case away when he writes :—

"*As did her high-priest Rembrandt, when he saw* NOBLE DIGNITY *in the Jews' quarter of Amsterdam.*"

Or—

"To the day when she dipped the Spaniard's brush in light and air, and made his people . . . STAND UPON THEIR LEGS, that all nobility and sweetness, *and tenderness and magnificence should be theirs by right.*"

Gentlemen, "noble dignity," "tenderness," etc., have *nothing* necessarily to do with decoration, but they are the ALL ESSENTIAL qualities for fineness of sentiment in the pictures cited.

It was on this very point that our greatest poet, Mr. Swinburne, fell foul of Mr. Whistler and got worsted. I venture to think had Mr. Swinburne merely quoted these and similar passages his position would have been invulnerable, but he must "write." Indeed, truth of sentiment and fineness of sentiment are distinctly advocated as virtues in these passages and as I have always claimed them to be, and so what becomes of *l'art pour l'art* theory and the nonsense that "subject" has nothing to do with it. I have always maintained "subject" is as necessary as decoration for the perfect work, and I still maintain it; but the incompetent misunderstand "subject"—confounding it with "story-telling."

What is wanted in naturalism is a decorative illusion of Nature, a decoration embodying some fine and true *natural* sentiment, the decoration without the sentiment (not sentimentality) is a mere sensuous patch-work of colour, the sentiment without the decoration is mere "literature in the flat," and the truthful illusion without either sentiment or decoration is a mere statement of fact, which explains why Mr. Whistler's masterly "Carlyle" must always be of more *interest* than (say) a "still-life" picture by the same hand.

(*To be continued*).

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Leeds.—A meeting was held on the 6th inst., Mr. J. H. Walker (President) in the chair. There was a good attendance of members, and, being a lantern night, many lady friends were present. The Indian and Colonial set of slides belonging to the P.S.G.B. affiliated societies, and the *Photography* prize slides were exhibited. Both sets were very much admired, many of them receiving hearty applause.

Lewisham.—At the annual general meeting on the 7th inst. the following gentlemen were elected:—Vice-President, A. H. Miles; Committee, M. Stodart, B. Davidson, E. Eastwood, Prof. Lambert, M.A., R. W. James, M.I.C.E., C. Churchill, and W. C. Chaffey; Hon. Treasurer, E. B. Eastwood, 26, Breakspears Road, Brockley; Hon. Assistant-Secretary, H. L. Davis, 95, Cranfield Road, Brockley; Hon. Secretary, H. M. C. Sprunt, 192, New Cross Road, S.E.

Apparatus.

COMPRESSED DEVELOPERS FOR GELATINO-CHLORIDE PAPERS.

Mr. T. H. Powell, of 116, Denmark Hill, S.E., has forwarded us a sample of the above, which we have tested. Based upon Mr. Warnerke's paper, lately read before the South London Photographic Society, it is a convenient form of the developer, and is easily prepared by adding 20 drops of acetic acid to half a pint of distilled water, and a cupful of No. 1 powder is added, a cupful of No. 2 is also added to half a pint of distilled water, and when dissolved the two solutions are mixed and applied to the print without previous washing. Faintly impressed prints develop up quickly and well to full vigour without any staining of the whites. We can thoroughly recommend this, and by its use the operator is certain of getting materials properly compounded. The bath is applicable to all the gelatino and collodio-chloride papers, and will be found of great assistance to the printer.

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Exhibitions.

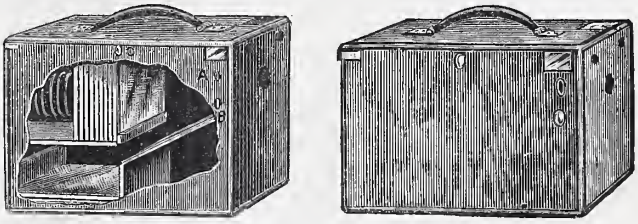
Society.	Entries close.	Opens.	Closes.	Address of Secretary.
National Photographic Exhibition, Crystal Palace ...	—	April 10	April 29	
Bolton Photographic Society	—	April 12	April 15	
Philadelphia (U.S.A.) Phot. Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.
National Sportsman's Exhibition (Photo. Apparatus Section).	—	April 24	May 6	Royal Aquarium, Westminster.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B

THE CRYSTAL PALACE EXHIBITION.

We are afraid that not even the most enthusiastic supporter or well-wisher of the above can call the apparatus section a success. The few stalls set up seem absolutely lost in the huge expanse available.

R. and J. Beck and Co., of Cornhill, E.C., have the most tasteful exhibit, which is resplendent with scarlet cloth and flag trophies; the centre block being covered with enlargements from Frena negatives. These enlargements, which are 144 times larger than the original prints, which are also included in each frame, are striking examples of the capabilities of the camera, and possibly the most speaking is an enlargement from a negative by Mr. H. Edwards, of the interior of St. Paul's, Rome, which is technically without flaw, and yet this was taken without any experience in photography. The working parts of the Frena and various developing and printing sets are also shown.

J. Theobald and Co., of 43, Farringdon Road, E.C., make a striking show of lanterns, slides, lenses, and condensers, the slides absorbing one whole side of the block, and are resplendent in colour A novelty in hand-cameras is the Meteor, which is a neat cloth-covered box measuring $9\frac{1}{4}$ by 5 by $6\frac{3}{4}$ in., and is constructed to carry twelve plates or films in sheaths; these, as shown in the diagram, are placed in the rear of the camera and are kept up to register by the coiled spring. Changing is effected by the turning of the nut C, the plate falling on to the inclined plane and then into the well



at the rear. The shutter, which works inside the camera, and is actuated by a spiral spring, is set by pulling the ring A, and released by turning the knob B: either time or instantaneous exposures may be given at will. For the money, and its price is only 12s. 6d., this is exceptional value. Two finders are provided. It may also be had covered in leather, with screw attachment for horizontal or vertical attachment to stand, for 21s.

Another cheap but well-made hand-camera is the Reliance, price 21s. This is constructed for dark slides, three being sent out with the camera; the camera is of polished mahogany, and a flap-door and ground-glass is also provided for stand work. This may be also obtained covered with cloth with R.R. lens, for 45s., or with a Taylor, Taylor and Hobson Detective R. R., at 70s. This camera is also well worth attention, and good value for the money. A neat bamboo stand and a walking-stick stand also attracted our attention, whilst for those who want cheap outfits either the London or Theo introduced by this firm should fulfil all wants. The London set for quarter-plate workers includes a double extension mahogany camera with folding tailboard and rack adjustment, reversing back, and one double dark slide, for 35s. The Theo is a complete set, includes long-extension camera, cloth bellows, three dark slides, achromatic lens, twofold tripod, and waterproof satchel-case. Several higher class cameras are also on show, and a special feature will be the painting of slides.

D. W. Noakes and Co., of Greenwich, have an interesting exhibit of lenses, cameras, and lanterns, but special attention will be attracted by the workmen who are busy fitting up lenses and lanterns and engaged in the cabinet-making of cameras. Mr. Noakes has also two new jets for the lantern, but of these we shall speak at some length in a later issue.

T. W. Crouch and Co., of 11, Bow Lane, E.C., have an excellent show of frames and mouldings, which are rendered more attractive by the charming etchings and pictures which they enclose. A special line with this firm are the patent washable gilt mouldings, which are cheap and solid looking.

Platt and Witte, of Birkbeck Road, Ridley Road, show lanterns and camera parts and fittings, a particular class of work for which they are famous. The aluminium fittings are specially neat and worthy of note.

J. Desire England, of 21-24, Charles Street, Notting Hill, have samples of work done on their celluloid films and lantern plates, the former, with enlargements from some of the negatives, speaking well for the character of the emulsion. The new dry-plate and film varnish, which can be applied by the brush, is also to be seen, as well as negatives varnished with the same. An extended use of this only confirms the good opinion we expressed of it a week or so back.

The "Cresco-Fylma" Company, of Brighton Hill, Surbiton, show some capital samples of enlarging by the aid of their fluid, and demonstrations are given at intervals.

The Incandescent Gas Company, of 14, Palmer Street, Westminster, show the arrangement used by Mr. Treble for obtaining portraits by gas-light, and some first-rate examples of work are included in Mr. Treble's exhibition of pictures in the art section.

THE CROYDON CAMERA CLUB.

The Committee and members of the above club are to be congratulated upon the excellent exhibition of works of distinguished photographers, which includes some choice examples of the work of Messrs. R. Robinson, Brownrigg, Byrne, Greger, Gale, and Seymour Conway; three fine specimens of work on the "Sandell" plates by their inventor; and a portfolio of the best work of Adam Diston. Mr. B. Gay Wilkinson, a Vice-President of the club, also sends some of his pictures. The judges, Colonel Gale and Mr. T. J. Bright, made the following awards:—

Class A (best prints illustrative of hand-camera work):—No. 9, bronze medal, George R. White.

Class B (lantern slides):—No. 22, bronze medal, H. E. Holland; No. 25, commended, George Corden.

Class C, Nos. 48, 49, 50 (series), silver medal, William F. Frost; No. 63, commended, George R. White; Nos. 67, 69, 70 (series), commended, A. E. Isaac.

Class D, No. 79 (fishermen), 1st award, C. E. Whitaker; No. 81, commended, H. E. Neeves.

Class E, No. 105, bronze medal, Miss J. R. Fooks.

Class F, No. 148, first award, A. E. Isaac.

It is to be regretted that the members' work sent in for competition is not of a higher quality, and certainly had the judges withheld the medals, no one could have grumbled. The exhibition was open from 5th to 8th inst, and each evening vocal and instrumental music, with lantern exhibitions, were given. Apparatus of all kinds was shown by Hirst and Co., of St. Michael's Road, W. Croydon, and Messrs. Crouch, of Barbican, have a case of their well-known lenses

Societies' Notes.

CIRENCESTER INDUSTRIAL ART AND LOAN EXHIBITION.—The photographic exhibits were a great success, mainly due to the show of Mr. F. Hoare and Mr. J. L. Burgess, the former of whom exhibited enlargements only, to the number of forty-three portraits and twenty-five landscapes. Mr. Burgess' beautiful whole-plate landscapes were greatly admired, while Messrs. F. R. Harding and F. Gardner came in for second place. The photographs were a great attraction, and Mr. Hoare's portraits consisted of well-known celebrities of the town and neighbourhood. Mr. Hoare, on Saturday, exhibited the well-known prize lantern slides to a large audience.

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GUILDFORD PHOTOGRAPHIC SOCIETY.—Annual general meeting April 6th. It was resolved to ask the Right Hon. the Earl of Onslow to take office as President. Other officers were elected as follows:—Vice-President, Mr. J. Russell; Council, Messrs. A. W. Bullen, T. L. Inman, A. J. Moon, and G. C. Williamson; Treasurer, Mr. J. H. Nunn; Hon. Secretary, Mr. A. E. Moon, 36, High Street, Guildford. It was decided to hold a conversazione shortly, and the Secretary was instructed to take the necessary steps to ascertain the probable cost, and to make preliminary arrangements.

Societies' Meetings.

Aston.—The first social evening was held on 6th inst., Councillor Sidney Fisher presiding. Mr. Geo. Priddon exhibited a coloured print which he had copied on three plates, viz., ordinary, isochromatic, both without screen, isochromatic with screen; and great surprise was expressed at the difference of the three prints, and the beauty of the final result. After Mr. Rallings had described the society's trip to Hampton in Arden on the 4th inst., coffee, cigars and conversation concluded a most enjoyable evening.

Croydon (Micro.).—On 7th inst., Mr. J. H. Baldock in the chair, Mr. H. S. Fry discoursed on the "Sandell Plate." These, he explained, differed from the ordinary plates in being coated with two or three emulsions of different degrees of sensitiveness, the most rapid being on the top, and resulted in several great advantages—enormous latitude in exposure, freedom from halation, etc. Proceeding to the development, he laid special stress on the adoption of a tentative system, using a weak developer when the exposure given was longer than the normal for the top film, and he attributed the want of success experienced by some for their not having so treated them. The stripping of the top film was strongly deprecated; if veiled it should be cleared. A series of very fine 15 by 12 prints, taken by Mr. Sandell, showed the great success with which alpine scenes, irregularly lit interiors, and other strongly contrasted subjects could be photographed ou these plates. A number of snap-shots taken by the lecturer were also shown.

Eastbourne.—Ordinary meeting on 5th inst., demonstration by the Secretary on "Cresco-Fylma." The lecturer stated that he had found any make of plate suitable, and the developers were hydroquinone, rodinal, and all developers of this class, pyro not proving so good in his hands. The lecturer then proceeded to enlarge several negatives and transparencies which we had brought with him for that purpose. He also showed several enlargements which he had done.

Harringay.—On the 6th inst. Mr. Watson presided. A demonstration of the Frena system was given by Mr. Bynoe, illustrated with diagrams on the screen. The demonstrator first showed and explained the new system of changing films, and the use and principle of the swing-back, also the very ingenious shutter. The whole demonstration was of a very practical nature. Some views taken with the Frena were much admired.

Hexham.—The fourth public lantern entertainment of this society was held on the 4th inst., Mr. Chas. E. Straker, President, in the chair. Mrs. W. Waters Stainthorpe, of Saltburn, delivered a most interesting and instructive lecture, entitled "A Holiday in Holland," which was illustrated by more than 100 lovely photographic slides of Dutch life and scenery, taken by Dr. W. W. Stainthorpe, M.D., who is an amateur photographer of long experience, and who does good, careful, and artistic work. The slides were shown by means of a powerful limelight lantern, under the able management of Mr. Barras R. Reed, assisted by Mr. Edgar G. Lee. Mrs. Stainthorpe, who is an able and eloquent lecturer, gave an interesting description of the country which they traversed, the cities, villages, people, and almost everything which came under their observation, and the frequent outbursts of applause showed the appreciation of a large audience of the lecturer and the lecture, on the motion of the Rev. Arthur Cross, seconded by Mr. Jasper Gibson.

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Holborn.—The fifth annual general meeting was held on the 7th inst., Mr. Fred Brocas in the chair. The Secretary read the annual report of the Committee, which was adopted. The Treasurer presented the balance-sheet, showing a balance in favour of the club of £14 18s. 8½d. The following officers were then elected:—President, Mr. A. Horsley Hinton; Vice-Presidents, Messrs. Fred Brocas, S. T. Chang, and R. D. Lowe; Hon. Secretary, Mr. F. J. Cobb; Assistant Hon. Secretary, Mr. Herbert Thompson; Treasurer, Mr. Albert Bell; Lanternist, Mr. E. Benest; Librarian, Mr. J Brittain. The following were elected to serve upon the Committee:—Messrs. J. H. Avery, E. H. Bayston, J. Bush, T. O. Dear, A. T. Ebsworth, A. W. Miller, and J. Stevens Several alterations in the general arrangements and rules were made, and the meeting separated. The first official outing was held on Saturday last at Hampstead Heath in excellent weather. A copy of Mr. J. A. Hodges' "Elementary Photography" has been presented by the publishers to the club library.

Llandudno.—The first lantern exhibition was held on 3rd inst.; there was a good attendance. Mr. Waterson took the chair, while Mr. Whiston (one of the Vice-Presidents) manipulated the lantern. Over 100 slides were passed through the lantern, chiefly the work of Messrs. Whiston, Waterson, Dean, and Eccles. Several members showed their first attempts at slide work, and they met with very friendly criticism.

Sheffield.—A meeting was held on 6th inst., Mr. Geo. Bromley in the chair, when, after the election of a new member, the secretary announced that Mr. Morgan, of London (who was down for a practical demonstration) was unable to keep his engagement through illness. The next business was the print exchange, fifteen members taking part, after which Mr. Draper produced a negative developed by amidol, which was the cause of a great deal of discussion and valuable information.

South London.—Annual meeting, 5th inst., Dr. T. G. Munyard in the chair. The Committee presented their fourth annual report, which showed that the society was continuing to progress, and that the number of paid-up members was 105. The proportion of working members had, during the year, largely increased. At the bi-monthly meetings demonstrations and papers of great interest had been given and read. The Club camera (12 by 10), lantern and slides had been in much request. Several valuable contributions to the library were made during the year, and the demand for the loan of the various works had been good. The Committee tendered their thanks to the Editor of the Amateur Photographer, *British Journal of Photography*, *Hand-Camera Review*, *Optical Lantern Journal*, and *Practical Photographer* for copies of their papers. An Excursion Secretary was appointed at the beginning of the year, and endeavours were made to put the outings on a better footing, which had met with some success. An exhibition on more extended lines was held in November last and favourably commented upon by the photographic press. The Treasurer's report showed that the members had obtained the maximum benefits for their subscriptions, a considerable amount having been expended in apparatus, which left the accounts just balancing themselves. The report and balance-sheet were adopted, and the election of officers proceeded with, which resulted as follows:—President, F. W. Edwards; Vice-Presidents, Maurice Howell, Dr. T. G. Munyard, W. Rice, and H. G. Banks; Committee, Messrs. Boxall, Buckle, Eldridge, Esler, Fellows, Greaves, Lester, Lyon, and Miller; Curator, G. H. Moss; Treasurer, E. A. Whitby; Hon. Sec., Chas. H. Oakden, 51, Melbourne Grove, East Dulwich, S.E.; Hon. Assist. and Excursion Sec., W. F. Slater, 169, Southampton Street, Camberwell, S.E. The affiliation scheme was discussed and it was decided to join the Affiliation Committee.

York.—On 5th inst., Mr. L. E. Morgan being prevented by illness from giving the demonstration with "Amidol" as arranged, the Hon. Secretary at very short notice undertook, as far as possible, to fill his place. After giving some account of the new substance, he successfully developed two negatives and a bromide print. A number of lantern slides were afterwards shown on the screen. The society is indebted to the Vice-President (Mr. A. C. Hick) for a gift of a very handsome box for holding lantern slides. Two new members were elected.

SOCIETIES' FIXTURES.

April 13—London and Provincial.—"The Influence of the Hand Camera," by W. D. Welford.
„ 13—Oldham.—Demonstration, "Photo Optics, Lenses, etc.," Mr. J. T. Lees.
„ 13—Leigh.—Social Evening.
„ 13—Huddersfield.—American Slides.
„ 13—Liverpool.—Lecture by Mr. W. T. Wilkinson, "Printing by Development on Alpha and Bromide Paper, Opals, Lantern Slides by Contact."
April 13—Dublin Y.M.C.A.—Technical Meeting and Exhibit of Prize Slides.
„ 14—Halifax.—"Our Experiences as Novices." Messrs. Blackey and Booth.
„ 14—Croydon.—Extra Lantern Evening—Lecture on "Winchelsea and Rye," by Mr. A. Brooker.
„ 15—Liverpool (Camera Club).—Outing to Bidston. Leader Mr. W. A. Stuart.
„ 15—Bristol (Camera Soc.).—Excursion to Bedminster.
„ 15—Leytonstone (Camera Club).—Excursion to Waltham Abbey.
„ 17—N. Surrey.—Annual Meeting.
„ 17—Kensington and Bayswater.—Lantern Lecture, "Nepaul and Nepaulese," by the Hon. William St. Clair.
„ 18—Brixton and Clapham (Camera Club).—Lecture by T. C. Hepworth, F.C.S., "Photography applied to Journalism." (With lantern illustrations)
„ 18—W. London.—Technical Social Meeting.
„ 18—Hackney.—"Record and Survey," W. Jerome Harrison.
„ 19—The Photo Club.—"Cold-Bath Platinotype Experiences."
„ 19—Eastbourne.—"Photography" 1892 Prize Slides.
„ 20—Aston.—"Failures."
„ 20—Harringay.—Sale and Exchange Apparatus.
„ 20—Liverpool.—Lecture by Mr. W. T. Wilkinson, "Printing on Carbon and Platinum. Enlarging Direct and from Transparency."
„ 20—Liverpool (Camera Club).—Outing to Bebington and Shoreton. Leader, Mr. J. Hawkins.
„ 20—London and Provincial.—Adjournment Discussion, "Determination of the Speed of Plates."
„ 22—Croydon.—Excursion to Leatherhead for Mickleham and Boxhill. Conductor, Mr. Low Sarjeant.

* * *

Photographic Development by Electrolysis.—The reduction of sulphurous acid or an acid sulphite by means of zinc, gives rise, as is well known, to the formation of the salts of an acid in a lower state of oxidation than sulphurous acid, and, therefore, termed hyposulphurous acid. It must not be confused for a moment with the body popularly and commercially known by this name, or rather by the name of its salts, the so-called hyposulphites, familiar to the practical photographer by the endearing abbreviation, "hypo." The latter substance is properly thiosulphuric acid, and its salts are, therefore, thiosulphates. True hyposulphites are much less common, their industrial use being chiefly in the preparation of a form of indigo vat of tolerably recent introduction in which the indigo is reduced to the condition of indigo white by their operation. The difference will be at once apparent on writing the formulæ for the real and the pseudo hyposulphite of sodium. The former is $Na_4S_2O_4$ (until lately it was supposed to be $NaHSO_2$), and the latter is $Na_2S_2O_3$. The reduction of an acid sulphite can also be effected by electrolysing its solution, hyposulphite appearing at the cathode. Now, like many reducing agents, sodium hyposulphite can act as a developer to a photographic image, a fact that was observed in 1886 by Eder. The negatives thus developed are very soft and full of detail, and are grey in tone, but not so bluish grey as those developed by ferrous oxalate. On account of the ease with which sodium hyposulphite is oxidised by exposure to the air, no practical use has hitherto been made of this observation, but a simple variation in the procedure by R. E. Liesegang, described by him in the *Photographisches Archiv*, has recently brought it into a more workable form. This modification consists in electrolysing a nearly saturated solution of acid sodium sulphite in the developing dish, the cathode being a platinum plate dipping direct in the dish, and the anode being contained, in a porous cell, and thus the oxidised products appearing thereat prevented from mixing with the hyposulphite produced. The current given by half a dozen Gassner dry cells suffices for reducing the acid sulphite. On immersing a fully-exposed bromide plate in the bath, an image, brownish red in tone, is developed in the course of a few minutes, the oxidation of the hyposulphite by the air or by the work of development, being made good by its being immediately reduced again by the action of the current. The image is not very strong, and fades somewhat on fixing, but it retains its characteristic colour. It is curious that there is a discrepancy in the accounts of the colour produced, given by Eder and Liesegang; the cause is probably a difference in the nature of the sensitive film. It is obvious that the same plan of electrolytic development could be applied to other bodies, such as hydroquinone which could be reduced from quinone, but as in this case the less oxidised bodies are more stable than sodium hyposulphite, they can be prepared by ordinary chemical means and used as wanted, instead of being produced at the moment of development.—*The Electrician.*

To Correspondents.

All communications for these colnmns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.

2. Write each Query or Answer on a separate sheet of paper.

3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.

4. All matters for these colnmns MUST be received by TUESDAY MORNING'S POST.

5. The Editor does not nndertake to answer Questions by post.

QUERIES.

6025. **Copying Albumen Prints.**—I am accustomed to making negatives from engravings, by magnesium light, but I shall be obliged if any one will kindly tell me what is the best mode of illuminating albumen prints. I am often troubled with a bright glare from various parts of the prints.—ROMA.

6026. **Eikonogen Cartridges.**—I have tried developing Marion's ordinary and Edwards' instantaneous isochromatic films with Dr. Andresen's eikonogen cartridges mixed with 7 up to 20 oz. of water. In each case the image came up rapidly and then fogged completely away. Can anyone kindly explain the reason?—G. S. H.

6027. **Monmouth.**—The most interesting "bits" to photograph at Monmouth, together with route, etc., will be received with thanks by—K. O P.

6028. **Cleaning Dishes.**—How do I clean my dishes which are stained with hydroquinone and ammonia?—TICULAR.

6029. **Reducing Prints.**—I have some solio prints rather over printed; how can I reduce them? They are toned and fixed.—R. SILCHESTER.

6030. **Alpha Paper.**—How do I get sepia tones on Alpha paper? Is a separate toning bath required?—OBEMIOA.

6031. **Safe Light.**—Which colour glass do your readers consider safest, yellow or ruby, and will paper answer the purpose as well?—A. TOFF.

6032. **Exposure.**—About what exposure is required for an oil painting, using ordinary plate in a good light, but picture rather dark?—H. I. H.

6033. **Paper Weights.**—Can any reader tell me where I can purchase polished glass tablets euitable for paper weights, etc., so that I can stick views on? An early reply will oblige.—AMATEUR, BEAMISH.

6034. **Writing Titles.**—Can any reader tell me how to write the name of view upon printing-out paper for opalines?—AMATEUR, BEAMISH.

ANSWERS.

5990. **Bicycle Carrier.**—I believe these can be had either at Fallowfield's or Adams' in Charing Cross Road.—MONTROSE.

5991. **Shutter.**—I know of no shutter which is more likely to suit A. A E. than the Toornton-Pickard time and instantaneous shutter.—MONTROSE.

6001. **Studio Building.**—I advise the querist to make enquiries at Geo. Houghton and Sons, of High Holborn, who I have no doubt would help him in this matter, and the lens named would do admirably for studio work, although there are better kinds, not "makes," to be had.—MONTROSE.

6013. **Ventilating Dark-room.**—To photographers who have dark-rooms, the ventilating of them seems to cause a lot of trouble. There are various methods of so doing, but the cheapest and perhaps best way of ventilating a dark-room is to make or have made two or three tin tubes, two or three inches in diameter, the shape of a Z, fixing them into the wall or roof of your dark-room, and must be painted dead black inside. This method is by no means new, and, I believe, is used a lot amongst photographers.—MONTROSE.

6013. **Ventilating Dark-room.**—I would advise "Ycrep" to refer to the AMATEUR PHOTOGRAPHER for October 23, 1891.—L. B.

6014. **Plymouth.**—Plymouth, which is situated on rather low ground, is a very good centre for the photographer, either amateur or professional. It is of historic celebrity, and has recently been embellished and rendered of greater interest by a splendid colossal statue of Sir Francis Drake being erected thereon at his tercentenary, and also by the old Eddystone Lighthouse being removed from the rock on which it has so long stood in the Channel, and re-erected on the Hoe by a committee acting for the inhabitants. There are a number of public buildings in the town which are well worth a plate. Near the shore is Drake's Island. To the west is Mount Edgcumbe and Devonport. The fortifications and Saltram Woods lie to the east. A visit with the camera must be made to the Royal William Victualling Yard. It stands on the Devil's Point, which is the entrance to the Hamoaze. The River Tamar will afford any amount of photographic work. If "A. R. N. O." wants a pleasant excursion, he should go to Saltash, to see the Albert Tubular Bridge. The Hamoaze will provide ample work for the camera. Querist should also go to Bigbury Bay, Salcombe, Kingsbridge, Whitsand Bay, Rame Head, Looe, and many other places too numerous to mention. Of course, it depends how long your correspondent will stay at Plymouth, whether he will be able to do the surroundings. There is a dark-room available at W. Heath's, George Street, who also stocks plates, paper, chemicals, etc. I should advise "A. R. N. O." to get the "Amateur Photographer's Annual" for 1892.—D. H. W. PREEDY.

6015. **Plates on Tour.**—Frequent travelling has taught me that the best method for carrying plates is to take two boxes, one of them about two inches smaller every way than the other. In the small one I pack the plate boxes side by side, upright like books on a shelf; if there remains any vacant space I fill it with crumpled thick packing paper. I fasten the lid of the box with a cord and put it in the larger box, taking care that the bottom and the sides of it are lined with crumpled packing paper or with any other material which will prevent the ill-effects of rough handling by railway porters, etc. The outer box is closed with a key, and on the sides are painted the words "Verres" and "Fragile." When the plates are exposed I pack them in the original paper which enveloped them first, and which has been kept carefully in the box for that purpose. I wrap the box in a piece of strong brown paper fastened with sealing wax, and write on it the subjects photographed on the plates. The box is then packed safely in the inner wooden box. I have never had a plate broken or a box opened by inadvertence, though I have travelled many hundred miles. If T. Humber is accustomed to develop without difficulty different sorts of plates, and if he has dark slides in which he can adapt carriers for Continental sizes, in case he wishes to travel on the Continent, he can buy his plates only when he wants them. In Paris he will find the Ilford plates at Mr. Carette's, 21, Rue Laffitte. In most of the larger towns of France he can get the plates Perron (a very reliable brand), about as quick as Ilford rapid. In Switzerland he can trust to the Smith plate, which is made in three rapidities, and is excellent. Before setting out he could write to the Ilford Co. and ask the address of their agents in the different towns abroad He could then spare the carriage of the plates one way and lessen the risk of breakage; but of course he must take with him the two boxes, to be sure that they are strong and fit well one into the other. In many towns in France exist photographic societies which open their dark-rooms liberally to members of other photographic societies on presentation of their card; the address of the secretary is got easily at a dealer of photographic materials.—KI-NOX.

6016. **Road Map.**—I think, if "E. R." is able, he should purchase "The Roads of England and Wales," published by Messrs. Iliffe and Son, 3, St. Bride Street, Ludgate Circus, E C., which, I think, would supply his want.—D. H. W. PREEDY.

6017 **Flare.**—In answer to "Lighthouse's" query, I cannot do better than to quote Mr. E. J. Wall's definition of a flare. He says, "A flare is a fogged central patch on a developed plate, or seen as a circular patch of light on the focussing screen. It is said to be an image of the aperture of the diaphragm, or in some cases of the lens itself. The surface of the lens reflects the opening of the diaphragm, and forms a distinct image of it, and when this coincides with the focus of the lens this image is seen as a flare spot. Again, others, and amongst them Monckhoven, in his 'Photographic Optics,' states that it is due to too close an adherence to the globular form by the optician who constructed the lens. Others, again, state that it is due to the edges of the diaphragm aperture being worn bright, and this no doubt is a general cause for its sudden appearance in a lens; others state that when the lenses are mounted in cells which are not blackened, a flare is almost certain to make its appearance. All lenses should be examined for this most annoying defect, which can rarely be wholly eradicated. It is very often a defect in portrait lenses when such are used for outdoor work where any portion of bright sky is included in the background, and in this instance it is clearly an image of the lens by reflection from the surfaces. The remedies are not by any means satisfactory, as, whatever is done, at its best the flare spot is so distributed over the whole plate instead of being localised. When the diaphragm edges are worn bright they should be blackened, and the cells in which the lenses are mounted should also be attended to. It can be eliminated partially, as stated above, by altering the position of the diaphragm slightly; but as this is used to reduce distortion to a minimum, the remedy may be worse than the disease by introducing this defect. Slightly altering the relative positions of the two lenses will also efface it, but, as said before, only by distributing it"—D. H. W. PREEDY.

6024. **Blind Shutter.**—I should advise "A. B. K." to get a new blind for his shutter.—D. H. W. PREEDY.

6024. **Blind Shutter.**—Blind shutters have a very good name and sale, and the only fault to be found with them is that the cloth lets in light after a fair amount of wear and tear, and when this is experienced I know of no better remedy (one which will not be likely to trouble the user again for a time), and that is to have a fresh blind altogether, if possible getting one which is stronger and made to last longer. I doubt whether anything can be done with the worn-out blind, at least anything which will satisfy the user. Blind shutters require great attention, and it should be seen that no child or such person is likely to set and let the shutter go a number of times running, as this not only causes unnecessary wear and tear, but in more than one way injures the shutter; and further, shutters should not be wound up to such a pitch as to make them go as quickly as possible, as this does more damage than anything, and if a rubber ball is used to let the shutter go, this should be looked at occasionally, in order to keep it and the tubs from getting hard, in which state it very often cracks. In conclusion I may say that blind shuttere such as Thornton-Pickard cannot be beaten, and if used properly and with care they will last some long time, giving most successful exposures, both time and instantaneous.—MONTROSE.

QUERIES UNANSWERED.

March 17.—Nos. 5979, 5980, 5987.
,, 24.—Nos. 5994, 5995, 5996, 5998, 5999.
,, 31.—Nos. 6003, 6004, 6005, 6007.
April 7.—Nos. 6018, 6019, 6020, 6021, 6022, 6023.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week This we much regret.*—ED. AM. PHOT.

W. B. POST (New York).—Print received. Quite right; you will see by last week's issue we made a slip.

H. PRESS.—Not yet; probably the end of the month.

H. HOLT.—We hope to send you medal this week. We have noted about name.

THORNHILL.—(1) Utterly spoilt by the hideous rail in the foreground, good technically. (2) Spoilt by printing in too strong a light. (3) Water too white. (4) Better, but still too white. (5) Bridge too central and a little hard. (6) Better; your method of development is rather apt to give you well-contrasted negatives, and then the paper you use gives you hard contrasts. (7) Over-toned. This should have been taken the other way of plate.

F. PARTRIDGE.—You can use the citrate of potash solution with the American standard developer; it is not necessary to use a mixture of the citrates.

C. TYLEE.—Very sorry, but we had no idea that the cap would fit more than one society. It was not intended for yours.

PORTOBELLO.—Provided you wash the prints thoroughly before toning, the bath is good; if you don't, it is a very bad one and liable to cause all sorts of troubles and fading.

R. P. STONE.—We think your statement "absolute insensitive to all light" rather than strong. It is a slow process, and requires sunlight. Far better results are to be obtained by sizing the paper well with gelatine and brushing on—

Saturated solution uranium chloride 8 parts
,, ,, mercuric ,, 1 part

About 170 minims are required for 26 by 20 in. You can then develop on ferridcyanide, chloride of gold, or chloroplatinite of potash.

CLEOPATRA.—Fitch, 34, Angell Road, Brixton; Edwards, The Grove, Hackney; Eogland, Charles Street, Notting Hill, all make cut films suitable for hand-camera work, the rapidity and prices being about the same as plates.

AMATEUR.—No. 1 is very fair, but spoilt by vignetting, and the curtain is a little troublesome too. No. 2 shows fog at the side, otherwise satisfactory. The only thing you can do is to strain your prints well when mounting.

NEWHAVEN.—The *Photographic Art Journal* has been dead some two years. The *Photographer* has, we believe, been dead twenty years. The *Photo. Times* is still published weekly, price 15c.; published at 423, Broome Street, New York.

S. C. H.—We should choose No. 4,

HENRI SYLVESTRE.—You would find that a focus of $9\frac{1}{8}$ in. far too long for a hand-camera; 6 in. is the practical limit. The fixed focus for 18 ft. will be $9\frac{6}{16}$ in. This must be measured from the diaphragm slot. As you propose to use it on a quarter-plate, you would only use the centre of the field, and could therefore use it at full aperture, *f*/8, which would obviously be a little smaller from the increased focal length.

W. H. CHADWICK.—Your zeal has outrun your knowledge. The statements as to the waves of compressed air having been photographed are absolutely correct, and we can send you a proof of it. There is no statement in the cutting you send which is not true.

V. R. J.—Letter by post.

F. PARTRIDGE.—Your former p. c. came to hand too late for last issue. There is no need to add ferrocyanide to the citrate.

Organist.—Pleased to see prints if you number them and send envelope for return.

J. Thomas.—Pressure of work has prevented us from attending to your plates.

Trix.—(1) All your negatives are over-exposed, and probably you are using too much accelerator in the developer to commence with. Cut your exposures down to one-half at least. Over-exposed plates, as a rule, flash up very quickly in the developer, and then generally fog or get black all over. (2) For a portrait under the conditions you name, we should say that 1½ to 2 sec. was the limit. (3) Never use anything but a white paper. (4) The end of this month, we hope. (5) Clouds are best taken on a separate plate, and after taking the landscape, if there are good and suitable clouds, stop your lens down to *f*/45 or 64 and give a shutter exposure, without shifting the camera in any way; you will thus have but little difficulty in printing in. Isochromatic plates are best for this work.

Rhue.—(1) If you use the acid fixing bath as sold by Marion in cartridges, or Schwarz and Co. in tins, you need no clearing bath. (2) The same remark applies to the lantern plates. If you do not use the acid bath, then use an acid alum bath after thoroughly washing out the hypo—

Chrome alum	1 oz.
Citric acid	¼ ,,
Water	20 ,,

(3) Certainly it would increase the exposure about one-third, and destroy all fine definition. (4) Yes; hydro cum eiko is better than hydro alone.

G. H. Schafer.—Many thanks. We will have blocks made of sketches and print next week.

W. E. C. White.—We insert one letter, the other we have sent on to Mr. Sandell for answer, but a film should never be stripped.

Instantooraph.—Write to Watson and Sons, High Holborn, for their patent dark-slide clips.

A. J. Garwood.—Ask us another, please. Such mysteries as these are enough to turn one's hair grey. We can only suggest that soda sulphate was used instead of sulphite. Add a little solution of barium nitrate to the sulphite—a dense white precipitate insoluble in hydrochloric acid would indicate sulphate—or to the solid sulphite add a few drops of hydrochloric acid. A strong smell of sulphurous acid should be evolved.

Caer Glowf.—The cheapest way would be to use the lantern as it stands with ground-glass in front of lens and placing the negative close to ground-glass, and then fixing the euryscope to a box. The easiest method would be to sell lantern and buy a Cantilever.

Hircus.—(1) Hypophosphite of soda is not, so far as we are aware, a solvent of silver salts; it is therefore useless for fixing. (2) A shifting lens-board is useful when it is desired to cut off a small portion of a view without shifting the camera. You will find if you set your camera up and focus a row of houses opposite to you, that you will include, let us say, four houses numbered from 2 to 5; by shifting the lens sideways you can include four houses from 1 to 4 or from 3 to 6. (3) Yes, the engraved numbers represent, we believe, the *f*/*x* ratio value of the stops, which is found by dividing the focal length by diameter of apertures. (4) All your negatives are over-exposed. Cut your exposures down to at least one-half, and then you may get good results. (5) Never mind your margin, cut the prints down to give you the most artistic picture.

G. H. Evans.—(1) Use the same No. 1 solution, but replace No. 2 with the following—

Potassium bromide	5 gr.
Sodium carbonate (pure)	60 ,,
Sodium hydrate	30 ,,
Distilled water, to make	20 oz.

(2) A thin, clear negative with plenty of detail may be the result of over-exposure or under-development. (2) Halation is the cause of your thin tower; a foreground shutter would have improved matters, as would backing the plate. The same remarks apply to 3, 4, and 5. (4) No. 6 is not artistic with the tree in the centre. (5) In No. 7 the only thing to do is to convert the image into bromide of silver, and then redevelop till the image of the other part of plate is reduced, and before the developer has penetrated right through the window, then refix. Your work shows care in selection, but there is still great room for improvement.

A. H. Garner.—(1) Camera not held straight; over-toned. (2) Too much foreground, and wants clouds. (3) We have trimmed this down; print in some good clouds, and you will have a nice little bit. (4) Very fair. (5) Ditto. (6) Too patchy and confused. You are printing in too strong a light, and over-toning. Not quite up to standard yet.

B. Puckle—Your prints are much over-printed, and toning carried rather too far. The spots look like bleaching caused by some foreign matter having come in contact with prints.

Stereoscopic Competition.

Slides have been received from:—

Ringeway, H. G.	Sunderland
Higson, J.	Salford
Perry, Rev. J. J. M.	Alnwick
Stainthorpe, W. W.	Saltburn-by-the Sea
Blackwell, Geo. W.	Sheffield
Taverner, W.	London
Milburn, W...	Sunderland
Brierley, H. G.	Huddersfield
Young, J.	Bolton
Fairweather, W.	
Bell, G.	Preston
Copeman, R. W.	Henstridge
Melhuish, T. W. W.	Vienna
Taylor, J.	Dewsbury
Robinson, J. H.	Tynemouth
Ellam, J. E...	Yarm
Wall, Mrs.	Ashburton
Cassingham, W. B.	Tunbridge Wells
Warburton, J.	Bowdon
Ellsworth, W. S.	Liverpool
Spencer, J. H.	Chester
Huggins, J. W.	Exeter
Mackenzie, F.	Glasgow

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence****, Every additional* ***three words, one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one word****; compound words count as* ***two words****.)*

DEPOSITS.—*Money for goods forwarded on approval may be deposited with the Publishers of the* Amateur Photographer, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge 1s.*

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* Amateur Photographer, *1, Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* Editor, Amateur Photographer, *1, Creed Lane, London, E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.****, or a commission of* ***2½ per cent.****, upon the sale price of the apparatus.*

Burnisher.—9in., perfect, with lamp, half original price, 15s., sent carriage paid on receipt of cash.—H., 21, Avenue Villas, Child's Hill, N.W.

Cameras, etc.—Quarter-plate camera (almost new), tripod, stand, two printing frames, drying rack, etc., cost 42s., will sell for 22s. 6d.—No. 394, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Mahogany stereoscopic camera, three double and one single dark slides (no lenses), in good condition, 25s.—Guthrie, Bonnington, Edinburgh.

Cameras, Lenses, etc.—Half-plate camera, R.R. lens, Lancaster's half W.A.R. lens, iris (new), Kershaw shutter, Chadwick's tripod (new), view finder, slides, case, etc., £6 10s., or offers; also vols. 4 to 11 Amateur Photographer, bound half calf, and vols. 12 to 16 complete, unbound, and first 4 vols. "Camera," bound half calf. Offers?—No. 389, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Enlarging Camera.—Griffiths' fixed-focus camera, enlarging from quarter-plate to 10 by 8, sent carriage paid for 12s. 6d.—H., 21, Avenue Villas, Child's Hill, N.W.

Hand-cameras, etc.—No. 5 Kodak, plate attachment, three double dark slides, loaded 48 films, cost £15 7s., as new, take £10; No. 2 Kodak, cost £7, good as new, take £5.—Boucher, South Crescent, Hartlepool.

Kodak No. 3 Junior, equal new, £5 15s. lowest.—Bygrave, 13, Canterbury Road, Brixton, S.W.

Griffiths' hand-camera, finder, shutter, and two dark slides, price 13s., good order.—Lennerd, 29, Clarence Street, Preston.

Swinden and Earp's quarter-plate hand-camera, complete, good condition, cost £7, price £3.—Barclay, Allington Rectory, Salisbury.

Handsome ebonized 5 by 4 Magazine hand or stand camera, holding 12 plates, superior workmanship, specially made by Hare, fitted with two large sunk finders and full size focussing screen, suitable for lenses 5⅝in. to 7½in. focus, cost £6 6s., offers near £4 entertained. Can be seen in City by arrangement.—T., 20, Sibella Road, Clapham, S.W.

Adams' Ideal, good condition, £5.—Hannaford, 38, Acklam Road, North Kensington, W.

Quarter-plate reflector focussing hand-camera, with Eastman rollholder, no lens, takes from 6¾ to 7¾ focus lens, 50s.; grey cloth background, 6 by 8, 5s.; pair deep porcelain dishes, 16 by 14, 5s. Wanted, lantern with 4in. condensers which could be used for enlarging.—W. G. Perks, Clevelands, Walthamstow.

Adams' hand-camera, Ross' lens, Newman shutter, in perfect condition, cost £15 15s., will take £11 10s.—No. 396, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Talmer hand-camera for 25s.—Pallett, 41, Bishopsgate Street Within.

Lenses, etc.—5in. wide-angle rectilinear, no name on mount, but similar design and quality to Optimus 7 by 5 wide-angle, covers whole-plate, having no further use for it will accept 30s.—H., 21, Avenue Villas, Child's Hill, N.W.

Marion's No. 2 half-plate R.R., 27s. 6d.—Pearse, Market Street, Exeter.

Dallmeyer's No. 1A wide-angle landscape lens, in good condition, 30s.—Guthrie, Bonnington, Edinburgh.

Ross' rapid symmetrical, 8 by 5, £4.—Vicar, Mere, Wilts.

Portrait lens, 10 by 8, single view, 15 by 12, both splendid definition, Decoudun's photometer. Offers wanted, or exchange in 20 by 18 rapid rectilinear.—Stanfield, 6, Station Hill, Winchester.

8 by 5 Dallmeyer's rapid rectilinear, iris diaphragm, 11in. focus, as new, cost £7 5s., first postal order for £5 10s. secures it.—G. E. D., 205, Camberwell Grove, S.E.

Will sell my whole-plate rapid rectilinear, iris diaphragms, new, perfect, 28s.; half-plate rapid rectilinear, Waterhouse stops, 12s.—Miss Summers, Hillesley, Glos.

Ross' No. 6 portable symmetrical, 8in. focus, 75s., new; Eastman quarter-plate rollholder, faultless, 19s.—2, St. Andrew Square, Manchester.

12 by 10 wide-angle rectilinear, 65s.; 8½ by 6½ Taylor's wide angle rectilinear, 47s. 6d.; 5 by 4 R.R., iris diaphragms, 27s. 6d.; half-plate R.R., 20s.; Lancaster's 15 by 12 wide angle landscape, 25s.—59, Keppoch Street, Cardiff.

Lancaster's quarter landscape lens and See Saw shutter, 8s. 6d.; three Tylar's quarter metal double slides, 6s., perfect.—H. E. Illingworth, Rawdon, Leeds.

C.-D.-V. portrait lens mounted on Lancaster's half-plate front, £1.—T. Stimson, 202, Northumberland Road, Southampton.

Whole plate portable lens, 25s.; do., time and instantaneous shutter (Chauventon), 10s.—F. J. Clarke, 26, New Bridge Street, E.C.

Negatives.—Negatives, 24 views about Exeter in well-made boxes, no reasonable offer refused.—Howard, 21, Boston Grove, Rotherham.

Sets.—Half-plate landscape Optimus camera, old pattern but thoroughly serviceable and best for instantaneous work, two best double backs, carriers and film holders, 7 by 5 R.R. lens, guinea Mignon shutter, separate front extending to 20in., firm guinea stand, case, lamp, and sundries; to ensure quick sale, £5 10s. taken for lot, or sell separately. Can be seen in City by arrangement, or at 21, Avenue Villas, Child's Hill, N.W.

Quarter-plate complete set by Hulme, lamp, dishes, etc., 25s., bargain, or exchange for good quarter-plate camera only, swing-back, etc.—Bezant, 2, Chadwell Street, Clerkenwell.

Whole-plate Lancaster's Instantograph, latest pattern, two dark slides, lens (iris diaphragm), and shutter, and new pattern ash stand, all in finest condition, cost £7 10s., will take £5 10s.—H. J. Adams, St. John's, Cedars Road, Beckenham.

Lancaster's half-plate Le Merveilleux, lens, two double backs, tripod, and waterproof case, 5‑s., or exchange good quarter-plate set; must be on approval.—Clegg, Guilford Street, Brierfield, near Burnley.

Lancaster half-plate Instantograph outfit, including new finder and two double dark slides, slides want slight repair, price £2 2s., bargain. May be seen by appointment any night after 7 p.m.—J. Wise, 30, Leigh Street, Stanley, Liverpool.

Half-plate camera, three double dark slides, two pair lenses, tripod, and case, bargain, £4.—Sharp, Butcher, Hereford.

Quarter-plate Perken Son, Rayment camera, three slides, stand, and rapid euryscope Optimus lens, *f*/6, portraiture about *f*/4, cost £7 12s., approval, deposit, £5.—Sausage, c/o Martin, 76, Royal Hill, Greenwich.

Lancaster's special brass-bound Instantograph, quarter-plate, with lens, tripod, two slides, two shutters, three dishes, three printing frames, negative box, and light-tight box with lock and key, focussing cloth, and dozen plates, price 60s., cost 90s.; all quite new; sold as owner is going in for larger work; no approval, but warranted in order and as described.—W. Parker, Bleak Hill House, Burslem, Staffs.

G. Hare's 10 by 8 new form camera, and three double slides in leather case, Dallmeyer rapid rectilinear lens, Newman shutter, sliding and folding stand in case, good as new, £17.—26, Calthorpe Street, W.C., London.

Complete half-plate set, Lancaster's international camera, three double backs, tripod stand and case, Silver Ring R.R. lens and W.A.R.R. lens fitting sam flange, iris diaphragm to both, Rubralux lamp, dishes, printing frames, and sundries, £7 10s.—Munyard, 4, Lenham Road, Lee, S.E.

Quarter-plate double extension camera, swing back and front reversing frame, five double slides, in lock-up case, complete £3; R R. lens, iris diaphragms, £1 5s., all new condition.—Law, 87, Cobden Road, South Norwood, S E.

£2 15s., or offer. Quarter-plate camera, first class single view lens, double dark slide, three-fold brass-mounted tripod, instantaneous shutter (Guerry's patent, cost £1 12s. 6d), bag, focussing cloth, etc., a bargain.—R., 1, Sedgmoor Villas, Southampton Street, Camberwell, S.E.

Quarter-plate camera, Lancaster's Merveilleux lens, tripod, double back, good condition, 14s.—Elmore, 50, Royal Road, Ramsgate.

Rochester Optical Company's new model 5 by 8 camera, view lens, two double slides, folding tripod, printing frame and box, £2, a bargain.—William Adamson, 56, St. Vigeans Road, Arbroath, N.B.

Lane's improved 5 by 4 square camera, reversing back, etc., three double slides, four-fold stand, case, Fallowfield R.R. lens, £3 10s.; Ross' 5in. portable symmetrical, £2 10s.; all good condition.—S. S. Glenister, 65, Sutherland Square, Walworth.

Quarter Lancaster's Instantograph brass-bound camera, rapid rectilinear lens, three fold tripod, four double slides, complete set in best leather case, dishes, and printing frames, cost £9, take £4 10s.—Simpson, 261, Whalley New Road, Blackburn.

Shutter.—Thornton-Pickard instantaneous shutter, as new, fit Optimus 7 by 5 or half-plate lens, 8s.; also Ye Phantom flap and drop shutter, pneumatic release, fit Wray's 7 by 5, 5s., or exchange.—J. Munro, 77, Falmouth Road, London, S.E.

Sundries.—Talmer hand-camera, quarter-plate, new, 55s.; 5in. condenser, mounted, 20s.; enlarging bellows camera, 15s.; quantity of other photographic apparatus cheap; exchange. — Dalton, Wantage, Berkshire.

WANTED.

Cameras, etc.—Wanted, half-plate camera, wide-angle, parallel bellows.—Rev. Henry, Portglenone, Belfast.

Cameras, Lenses, etc—10 by 8 camera, Rayment's improved or good make, Wray's long focus and wide-angle lenses.—No. 395, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Dark Slides.—Wanted, dark slides for 1889 quarter-plate Instantograph.—Leake, West Winch, Lynn.

Enlarging Apparatus.—Enlarging lantern and half-plate camera, cash. Lowest price to Parker, Culmore, Londonderry.

Hand-cameras, etc.—Wanted, Adams' No. 2 Ideal hand-camera, Wray lens, in good condition, '92 or '93 pattern.—Apply, R. Y. Maxtone, Campbeltown, N.B.

Shutter. — Wanted, Thornton-Pickard quarter-plate pneumatic time shutter at once.—J. W. Cufley, 43, The Grove, Vauxhall.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Cameras and Sets.—Lancaster's whole-plate brass-bound Instantograph, wide-angle movement, all latest improvements, leather bellows, etc., fitted Lancaster lens, iris stops, instantaneous shutter, two double brass-bound slides, carriers and folding stand, finest condition, £6 17s. 6d., whole-plate camera, Instanto, by Underwood, double extension, leather bellows, rising, falling, and cross fronts, swing-back, etc., double dark-slide, carriers, rapid rectilinear lenses, and folding three-fold stand, £5 17s. 6d.; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; half-plate Lancaster's Instantograph camera, double extension leather bellows, all improvements, rapid rectilinear lenses, two double slides, folding stand and case, £3 17s. 6d.; half-plate camera, by Houghton, Holborn, grand lot, double extension, rising and falling front, swing and reversing back, three double slides, grand rapid rectilinear lens, iris stops, works f/8, and three-fold stand, set as new, £6 10s.; half-plate Underwood's Instanto camera, leather bellows, square wide-angle movement, rising, falling, and cross fronts, double dark slide, quarter carrier, rapid rectilinear lens, Waterhouse stops, and folding stand, £3 17s. 6d.; Lancaster's 5 by 4 International, all latest improvements, wide-angle movements, fitted Optimus rapid rectilinear lens, iris stops, double slides, and folding stand, £3 15s. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Tench No. 7 landscape, covers 12 by 10, rotating stops, grand definition, as new, 70s., cost £3 10s.; whole-plate rapid rectilinear by Watson, Holborn, fitted iris stops, works f/8, condition as new, 75s.; Grubb aplanatic doublet lens, fitted Waterhouse stops, works f/8, best condition, £3 15s.; fine 7 by 5 rapid rectilinear lens, by Laverne, works f/8, movable hood, grand definition, covers well, as new, 27s. 6d.; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s.; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works f/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s.; 7 by 5 rapid rectilinear (Leviathan), iris stops, grand definition, covers well, 30s.; half-plate rapid Euryscope by Bauz, works f/6, Waterhouse stops, grand article, 35s.; 7 by 5 Optimus landscape lens, rotating stops, finest condition, 27s. 6d.; 7 by 5 "Black Band" lens by London Stereoscopic Co., Waterhouse stops, covers well, finest order, 45s.; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works f/8, movable hood, as new, 45s.; 5 by 4 Dallmeyer wide-angle landscape lens rotating (1A patent), rotating stops, grand definition, 50s.; Ross's No. 4 portable symmetrical, 6 in. focus, rotating stops, as new, 63s.; Laverne 5 by 4 wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B), Waterhouse stops, rack focussing, condition as new, £3 17s. 6d., cost £6 5s. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

Bargains in Hand Cameras.—Houghton's Shuttle hand-camera, fitted rapid rectilinear lens, rotating stops, time and instantaneous shutter, adjustable focus, two sunk finders, carries 12 quarter plates, automatic changing, perfect condition, £5 7s. 6d.; Beck's Frena hand-camera, fitted Beck's Autograph rapid rectilinear lens, carries 40 films, finest condition, covered leather, loaded with 20 films, £4 5s.; Adams' hand-camera, fitted Ross rapid symmetrical lens, with iris stops, time and instantaneous shutter, adjustable focus, two sunk finders, detachable changing box, covered leather, in finest condition, £10 15s.; Beck's hand-camera, 5 by 4, fitted Beck's autograph lens, iris stops, eight double dark-slides, Newman's time and instantaneous shutter, two finders, adjustable focus, covered in morocco leather, very finest condition, take £10 10s.; Talmer hand-camera, as new, good lens, time and instantaneous shutter, carries twelve quarter-plates, bag changing, two large finders, lowest, 63s.; B daylight Kodak rectilinear lens, shutter, carries twenty-four films, covered morocco, 45s.; Vannecke hand-camera, by Watson, fitted Watson R.R. lens, iris stops, time and instantaneous shutter, full size finder, adjustable focus, covered leather, size 3¼ by 3¼, bag changing, carries twelve plates, also roll-holder, finest order, £5 15s.; Adams' Ideal hand-cameras, fitted rapid rectilinear lens, time and instantaneous shutter, two finders, carries twelve quarter-plates, covered morocco, £5 7s. 6d.; Houghton "London" hand-camera, fitted good lens, adjustable finder, shutter for twelve quarter-plates, ebonised, as new, 45s.; Lancaster's Rover hand-camera, fitted Lancaster lens, Thornton-Pickard shutter, finder, etc., size, quarter-plate, in leather case, £2 12s. 6d.; Fallowfield's Facile hand camera, fitted R.R. lens, time and instantaneous shutter, carries 12 quarter plates, condition as new, £3 17s. 6d.; Radial hand camera, by Marion, fitted "Soho" lens, carries 12 quarter-plates, shutter, two finders, focusser, etc., in leather case, £5 17s. 6d. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Magic Lanterns and Slides. — Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in. condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

Regulators and Gauges.—Great reduction in price. Either can now be had of Walter Tyler for 14s. each. The largest stock of gas cylinders in England. Best seamless steel, tested and valved, and all sizes at very low prices.

Slides from Negatives and Pictures.—Walter Tyler manufactures and colours slides on the premises, thus ensuring speedy delivery, and prices are most moderate.—Walter Tyler, 48, Waterloo Road, London.

Biunial Lanterns.—If you are in want of a really good biunial lantern, perfect in every respect, call and see Walter Tyler's entire brass fronted, mahogany-bodied, lined with Russian iron, and fitted with new best quality lenses, and sold at a most moderate price. The top lantern will take a 4-wick lamp. These are great bargains.—Walter Tyler, 48, Waterloo Road, London.

Hire Department is now perfect. Largest and best collection of slides in the world; over 200,000 always in stock. Temperance, travels, Scripture, educational, comic, tales, etc. Cheaper than any other house, no extra charge for coloured slides or effects. Special terms for large quantities.—Walter Tyler, 48, Waterloo Road, London.

Lanterns and Slides.—If you wish to hire, purchase, or exchange, you cannot possibly do better than go to Walter Tyler, who makes this business a specialite, and you will thus save dealer's and all intermediate profits.—Walter Tyler, 48, Waterloo Road, London.

Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps. Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; scientifically constructed, not commercial; several whole and half plate for sale, cheap.

The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Science Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

Magic Lanterns, Magic Lanterns.—Largest assortment in the world, cheapest and best, nicely japanned lantern, 4 in. double condensers, portrait combination front lenses, rack and pinion, four-wick lamp, in case, £1 7s. 6d. Others more elaborate, but as cheap.

The Docwra Triple Prize Medal, highest award, supplied to Dr. H. Grattan Guinness, Capt. C. Selwyn, Madame Adelina Patti, and the Royal Polytechnic, etc.

The Malden Triple; supplied to B J. Malden, Esq.; unparalleled results; Capt. Chas. Reade, R.N.

Fine Triple Lantern; telescopic draw tubes, four set of high-class lenses, £38 10s., worth nearly double. Given away.

Special Triple; mahogany, entire solid brass fronts, £12 12s.; a really good lantern, unequalled.

Elegant Mahogany Biunial; brass fronts, £7 10s.; blow-through safety jets, 6s. 6d. and 8s. 6d.; mixed gas jet, 12s. 6d.; Malden double dissolving tap, 12s. 6d.; regulators 12s. 6d.; gauges, 12s. 6d.; grand effects; particulars free, before purchasing. Send for Mr. Hughes's grandly illustrated catalogue, over 180 finely cut original wood engravings, price 6d., postage 3d.; separate list of 60,000 slides, price 6d., postage 3d.; pamphlets free; second-hand lists free of bargains.—W. C. Hughes, Brewster House, Mortimer Road, Kingsland, London, N. Fifty slides, all nicely coloured, on loan for 3s., in special despatch boxes.

ENLARGING APPARATUS, quarter-plate, 5in. condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work.—Hume, 1, West College Street, Edinburgh.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods. with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

REDUCING WHOLESALE STOCK.

SECOND ANNUAL STOCK-REDUCING SALE to clear for the coming Season, 50 per cent. Reduction in some cases! New high-class Cameras, all sizes; Platinotype and Key Hand-Cameras. Ross, Dallmeyer, Beck, and Wray's R.R. and Wide-Angle Lenses. 50,000 Mounts, all sizes; Canvas and Leather Cases, Tripods, Presses, Dishes, and all Accessories. Special opportunity to purchase complete outfits at great reductions. Printed Lists on application to EDWARD PECK, Photographic Chemist, East Dereham, Norfolk.

The AMATEUR PHOTOGRAPHER

Telephone No. 1645

Telegraphic Address: VINEY, LONDON

Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 446. Vol. XVII.] FRIDAY, APRIL 21, 1893. [Price Twopence.

OUR ◆ VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 *till* 5 *o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc, from* 10 *till* 1 *o'clock.*

Our Views—Camera Club Conference—An Impressionist Sketch—Mr. Briant's Paper—Van der Weyde's Photo-corrector—what it is—The Annual Dinner—The Crystal Palace Exhibition and the Lay Press—The Fiend Hand-Camera—The Sun Paints the Tones—The Linked Ring—City and Guilds Examinations—Sprange's Blue-book.
Whisperings. By the Cynic.
Flotsam and Jetsam. By Anchorite.
Letters—Watkins' Exposure Meter (Watkins)—Toning Chloride Prints (Preedy)—Instantaneous Shutters (Animalculæ)—Notice (Fuerst and Schwarz).
Apparatus—Swift's Detective Lens—Professional Mountant—Climax Dry Plates—Lomberg Plates—Dollond's Umbrella Stand—Cadett's Snap-shot Plates—Beales's Nonactinine—Payne's Crystal Cage—Prouting's Lawn Studio.
Reviews—Hints on Enlarging.
Articles—Photographic Procedure (Wall)—The Status of Hand-Camera Work (Hinton).
A B C of the Lantern.
Exhibitions — Crystal Palace—West Surrey—Jersey—Sandell—Bolton.
Societies' Notes.
Societies' Meetings — Ashton — Birkenhead — Birmingham — Croydon—Darlington—Durham—East Grinstead—East London Fairfield – Hackney—Holborn — Hull — Kendal—Kensington—Leicester—Liverpool—Newcastle — North Middlesex—Rotherham—Stockton—West London.

EDITORIAL DEPARTMENT—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of* ***Three Words for One Penny****) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Print Competition, No. 48, Architecture.—Latest day, May 15th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, May 26th, 1893.)

The Camera Club Conference was held on the 12th and 13th at the Society of Arts, Adelphi, and, except for the evening of the second day, when Mr. Van der Weyde described his "Photo-corrector," the attendance was considerably below that of previous years. Perhaps the counter-attraction (?) of the Crystal Palace Exhibition militated against a larger attendance. We have already given a full list of the papers which were to have been read, it is therefore unnecessary for us to repeat them.

* * *

The most striking papers were those of Mr. Nesbit, Mr. Rowland Briant, and Mr. Van der Weyde. Mr. Hume Nesbit rather went for the new impressionistic school, and pointed his remarks by producing an impressionist sketch in colours in about five minutes, which those present were told contained "soul," and, if only looked at long enough, it would be apparent, but we regret to say that to us it was not so, and we sat deeply dismayed that we could not see it, but when Mr. Geo. Davison got up from his seat, and, after an intent look, gravely shook his head and sat down, we concluded that the "soul" was too fine for such earthly philistines.

* * *

Mr. Briant's paper was startling, and gave rise to some considerable amusement from a little incident which arose in the course of the discussion. He has been trying the use of astigmatic spectacle lenses, with a slit diaphragm in front, and by altering the position of the slit, that is by placing it either vertically or horizontally, he was able to produce some astounding results, which the Chairman, Captain Abney, said had given him a feeling of nausea.

* * *

It is a well-known fact that by using a narrow slit you can get most awful distortions, and some capital examples were lately given in one of our French contemporaries. We shall, however, refer to this subject again, and present our readers with an example or two produced by Mr. Rowland Briant's method.

* * *

Mr. Van der Weyde's illustration and description of the use of his "photo-corrector" was certainly the most interesting of all the papers. Our readers will know that by the use of the corrector it is possible whilst taking the negative of any one to reduce the head or hands or any part of the body if rather larger than they should be. Such distortions are in many cases not to be avoided, even by the use of long focus lenses.

* * *

The "Photo-corrector" is practically nothing but a plano-convex lens, placed just in front of the sensitive plate, with its plane side to the camera lens, thus reducing the size of any image the rays of which pass through it. As, however, to place a plano-convex lens of the ordinary form, that is with sharply defined edges, in front of the plate would cause a distinct outline to be visible, Mr. Van der Weyde ingeniously gets over this difficulty by using a sheet of plate-glass, probably originally of half to three-quarters of an inch in thickness, and grinds away that portion which he does not want, thus leaving a plano convex lens with, instead of sharply defined edges, a gradual transition into the plane. We hope to refer to this again, and give examples.

* * *

THE annual dinner of the Camera Clubmen and friends was duly held on 12th inst, and was well attended, the feature of the evening being Mr. Joe Pennell's reply to the toast of "The Visitors," in which he said he had been to see the exhibition on the walls of the Camera Club, and could only say that they had become "a set of prigs and thieves," thieving the ideas and titles even of the much maligned Whistler and other workers.

* * *

THE Crystal Palace Exhibition evoked some choice gems of criticism in the daily press last week, which could not fail to excite the risible faculties of the practical photographer whose eye chanced to light upon them. The *Telegraph*, in the course of a lengthy report, said (referring to some of the photographs) "it was difficult to imagine that these beautiful tones had been *painted by the sun!*"

* * *

How pleased the photographer, professional or amateur, would be if old Sol would really undertake a contract for "painting the tones" of his prints! How much valuable time, labour, and expense would be saved; and the photographic editor would no longer in those halcyon days be wearied with enquiries for toning-bath formulas, and toning baths themselves would soon become a drug in the market.

* * *

IN the same report Messrs. Beck's "Frena" hand-camera is referred to as the "fiend hand-camera." This little error may, however, reasonably be laid at the printer's door. Nevertheless, the *Telegraph* man once moro shines brilliantly in a final paragraph, wherein he advises all those who wish to take away with them a memento of their visit to the Palace to erect their cameras on the terrace and take a view of the grounds, which are now in splendid condition. We fancy that Messrs. Negretti and Zambra, who, as is well known, have the sole right of photographing in the Palace and grounds, might have something to say on this point.

* * *

Eheu! longe expectate quid venistis?

"Mr. —— has also, in consideration of the excellence of his work as a photographic artist, been invited to join a select body of high-class amateur and professional photographers known as 'The Linked Ring,' the object of which is to promote the spread of artistic photography. This brotherhood of 'The Linked Ring,' it is understood, has taken the Dudley Gallery for an exhibition of artistic photography, which is to be held in the autumn of this year."

At last we have the long expected with us. This is better than medals. To form one of the atoms in "The Linked Ring" is the highest honour that photography can bestow—the Rosy Cross to which all good men and true must aspire. Members, it is said, meet only four times a year at what is called "the mystic supper," and are apparelled in gorgeous raiment and wear a jewel suspended from a black ribbon shot with red and brown, the jewel being two linked rings with the mystic letters B. F. A. Can anyone solve the riddle as to what these letters mean?

* * *

WE have received the following notice from Sir Phillip Magnus:—

"The Council of the City and Guilds of London Institute, recognising the increasing importance in the mechanical reproduction of pictures, will in the forthcoming examinations to be held on the 3rd and 13th of May next, give special importance to this branch, by dividing the examination in the Honours Grade into two classes—one for pure photography, and the other for photo-mechanical photography. Special examiners have been appointed for each branch, and candidates have the option of declaring in which branch it is their intention of entering. They will not, however, be allowed to compete in both branches. The certificates granted will show in which of the two divisions the candidate has passed. The Council of the Institute hope that the encouragement thus given to the photo-mechanical division will tend to form in this country a school of competent craftsmen in this branch of photographic work."

* * *

WITH reference to our note on Sprange's "Blue Book" of amateur photographers, Mr. Sprange writes stating that all requests for the members' addresses were, he believes, submitted at the open meetings of the societies before being complied with. This is a complete answer to our correspondent's question which we inserted.

Whisperings.

AN unrehearsed effect! Scene: a lantern entertainment (not one thousand miles from Penge). Lecturer: "This, ladies and gentlemen, is St. Mary's Church, Blanktown; it can hardly be called a thing of beauty, perhaps it will be a joy for ever." *Piano plays softly "Yankee Doodle."* Lecturer: "The next slide is a flock of geese—birds of a feather flock together." Small but rude boy in the audience: "Is that why you are on the platform?" *Piano fortissimo.*

"But first I would remark, that it is not a proper plan
For any scientific gent to whale his fellow-man,
And if a member don't agree with his peculiar whim,
To lay for that same member for 'to put a head' on him."

I must be forgiven if I unconsciously break into verse, especially such hearty (Bret Harté) verse, this week, but the circumstances are peculiar. I have been to the Crystal Palace and I attended the Camera Club Conference, and as an antidote I was obliged to get something light to read.

"Now, I hold it is not decent for a scientific gent
To say another is an ass—at least to all intent:
Nor should the individual who happens to be meant
Reply by heaving rocks at him to any great extent."

Scene: The Adelphi Theatre. Mr. Fussy Astigmatic having read an extremely interesting paper sits down amidst applause. Mr. W. de 'Ancamera: "Mr. Chairman, I really must protest, the object of tho impressionist school is to show us Nature as they see it, or as they think they see it; I can only say if any one wants to see Nature as Mr. Fussy Astigmatic shows it in the prints he has handed round, the simplest thing is for him to get drunk." Then up rose Mr. Scratchety and "smiled a bitter smile," and said: "Mr. Chairman, I fully expected we should have a keen discussion upon this interesting paper. With regard to the remarks of the last speaker, I can only say that everyone will admit that he speaks with authority; as for me I have led a sober life!"

"Then Abner Dean, of Angel's, raised a point of order—when
A chunk of old red sandstone took him in the abdomen;
And he smiled a kind of sickly smile, and curled up on
the floor,
And the subsequent proceedings interested him no more."

And I've told in simple language what I know about the row, and, like all my simple stories, they be founded quite on facts.
The Cynic.

Flotsam and Jetsam.

It turns out that "the first sun picture of the human countenance ever taken," mentioned in this column a week ago, was not, after all, what it was said to be. Sir W. Herschel has since explained that it is, however, "the oldest extant sun portrait taken" by Professor Draper, and so probably the oldest extant anywhere. This was only fifty-three years ago, it is as well to remember.

Photography promises to make a conspicuous display at the coming Chicago Exhibition. Exhibits are being sent from all over the world, both of material and of views of every people and district under the sun. The exhibition buildings themselves, too, will doubtless be made the objects of countless exposures by amateur photographers anxious to bear away with them views taken by themselves of the imposing architectural achievements about which we have heard so much.

In this connection it will be well to remember an announcement recently made to the effect that the exclusive right of taking stereoscopic views in the Exhibition grounds has been sold by the authorities to a Mr. Kilburn, of Littleton, N.H. The phlegmatic Briton will probably read the notice and accept the inevitable. Not so, however, brother Jonathan. The mere idea of prohibition at once sets him thinking how to evade the regulation.

And so in the March number of *Wilson's Photographic Magazine* an ingenious contributor makes two suggestions to this end, which afford a typical illustration of Yankee cuteness. Was it not an American who said that though there is no word for kissing in the Japanese language, the young Jap. "gets there" all the same?

The suggestions—of which perhaps Mr. Kilburn will take note—are, first that two hand-camerists should stand side by side, one with his camera under his right arm, and the other with his camera under the left arm. Proper precautions having been taken as to the make of the plates, the proximity of the cameras, the selection of a point to form the centre in both cameras, and simultaneous exposure, etc., the idea is that to all intents and purposes a stereoscopic photograph will be obtained.

The other plan is to take two negatives from one camera, changing the position just enough to give the necessary separation between the points of view. This also looks a somewhat delicate and difficult operation, and we hardly fancy Mr. Kilburn need fear any rivals. Ordinary photographs of any size up to 4 by 5 inches, by the way, may be taken by all who care to pay a fee of 2 dols. per diem.

Societies for the promotion of this, and against that, are as plentiful as summer blackberries nowadays. One has just been formed "for protecting and promoting the picturesque simplicity of rural and river scenes, and the dignity and propriety of our large towns." With these objects all photographers will heartily sympathise, for no class are more interested than they in the preservation of rural simplicity and urban dignity, as the society somewhat quaintly phrase it. It is high time, too, that something should be done in this direction, for there is no Vandal so unscrupulous as your advertiser.

Yet advertising can be done in a most artistic and dignified way, as witness the attempts of the Great Eastern Railway Company to popularise the delightful districts and rural and seaside resorts served by their system. In most of their carriages are fixed admirable photographs of "rural and river scenes," historical places, such as Cambridge, Norwich, Ipswich, and other old towns in the eastern counties, while the Norfolk Broads furnish a perfect gallery of charming pictures.

Nothing could be in better taste than this kind of thing, and the eye of the business man on his way to and returning from the city is daily refreshed with the visions of cool country streams and shady woods far from the madding crowd, where he either has spent or hopes to spend many pleasant holidays. The Eastern counties, too much neglected till recent years, are a perfect Paradise for the amateur photographer, abounding in subjects of infinite variety and charm.

A very early palimpsest copy of the Old Syriac version of the Gospels has been found at Mount Sinai, and the announcement of the value of the discovery has agitated religious and critical circles considerably during the past week. The credit of the find belongs to a Mrs. Lewis, an Oriental student, but photography played no inconsiderable part in confirming the importance of the manuscript.

When Mrs. Lewis unearthed it, the MS. was in a deplorable condition, the leaves all sticking together and full of dirt. She managed to separate the leaves by the use of steam, and then, in the words of Professor J. Rendel Harris, who has told the story in the *British Weekly*, "she heroically photographed the whole of the MS." As it amounted to between three and four hundred pages, this, it may be imagined, was no light task.

The negatives were then taken to Cambridge to be deciphered, but Mrs. Lewis and the Professor have also been working on the original in the Convent of St. Catherine at Mount Sinai, and some interesting disclosures are promised shortly.

Someone will soon have to construct a genealogical tree for photography, for it is contracting alliances on every hand. The relations of Art and of Science with photography were discussed at the Camera Club Conferences last Friday, and on Tuesday, 18th inst., Mr. W. Allport, F.S.I., read a paper on "Photography in its relation to Architecture" before the Society of Architects.

Professor E. Mach gave a most useful definition of the value of photography in science. It consisted in its "power to fix the most transient phenomenon by a true image." Thus photographs of sound waves have been successfully taken, and of jets of air under high pressure," and "in most of these cases the length of exposure was not more than two-millionths of a second." These were snapshots indeed.

A correspondent writes that Ventnor, that delightful resort of honeymooners, is full of amateur photographers now. One cannot walk about the cliffs or stroll along the pier without coming across numbers of the dangerous little boxes stowed away under the amateurs' arms and ready to go off at a moment's notice, while the familiar tripod is also frequently in evidence. Every day furnishes fresh proof of the statement made by one of the London dailies recently that we are all photographers now.

Professor Anschutz's idea of utilising the resources of photography to obtain a perfect and continuous representation of various movements, such as, for instance, horses leaping, boys drilling, &c., has been well exploited in a certain shop in the Strand. Crowds of people have been attracted thither of late to see the various acts reproduced, which include performing athletes, a jumping dog, a boxing match, a squad of Uhlans, and, as prime favourite, two girls dancing most prettily.

The penny-in-the-slot principle is called into action to set the movements going, and, we presume, to make the show pay. Your true Londoner is ever ready to stay and take a peep, or even a somewhat prolonged stare, at such a sight as this, and for once he has a really ample excuse, as all who know what Professor Anschutz's method can achieve will at once acknowledge.

Letters to the Editor.

WATKINS' EXPOSURE METER.

Sir,—Let me assure Mr. White that there is no need for a special isochromatic paper for using this instrument in connection with isochromatic plates, and that the meter is quite efficient for the purpose as it is issued.

I speak with confidence on this point, for during the past three years I have used isochromatic plates for almost all my work, and invariably calculated exposure with my instrument. Neither in views taken near sunset nor in interiors have I noticed any undue tendency towards over-exposure, as would be the case if the sensitive paper were not suitable.

Mr. White can easily verify this fact by testing with my actinometer the proportion of light passed by a yellow colour screen, and he will, I think, find that it varies little from the increase of exposure required when the same screen is used with an isochromatic plate. For instance, I yesterday tested a No. 1 Ilford colour screen, which is stated to increase the exposure three times; the actinometer made the skylight 16 without the screen and 54 with the screen covering the sensitive plate, a ratio of about 3⅓.

I do not think Mr. White is correct in saying that when the atmosphere is foggy or misty, iso plates require less exposure than ordinary ones; my experience is that with all plates the exposure is lessened. Probably Mr. White is thinking of the fact that iso plates used with a screen give brighter pictures of a view with haze than an ordinary plate gives.

Again, it should by no means be assumed that because near sunset the sun's rays are yellow that they are the most important factor in the exposure. It is the light reflected from the sky (hardly ever yellow) which gives almost all the photographic illumination at this time.

Of course, there is a considerable difference between the ratio of sensitiveness to bright and to dull lights in various plates, and theoretically a different kind of sensitive paper would be required in the meter for different classes of plates. Practically the want has not been felt, and the disadvantages would be many. When I was experimenting with different brands of paper for the purpose I found the tendency was to produce a paper too rapid in dull lights, and the paper now in use, while correct when used for interiors with rapid plates, tends to induce under-exposure with such slow plates as Thomas's Landscape or Wratten's Ordinary. When slow plates are used for interiors (which is not often) a subject number of 200 or even 300 should be used with my instrument. With iso plates I have never found it necessary to depart from the usual standard subject numbers, although, if an interior were chiefly illuminated with coloured glass, I think I should use a smaller subject number than 100.

I enclose a print from a negative (on Edwards' Med. Iso plate) exposed at 7.30 p.m. in June with the aid of my actinometer.—Yours truly, Alfred Watkins.

[The print sent speaks well for the correctness of exposure.—Ed.]

* * * *

TONING CHLORIDE PAPERS.

Sir,—Having seen "Phosphate's" letter on Solio toning, perhaps my own experience may be useful to some readers. I tone the paper with Powell's compressed gold toning baths, which act very well, giving rich tones. There is one very essential thing that I should like to point out to brother amateurs; that is, be sure the water in which the contents of the tube are put is perfectly pure and free from all acid, or else they will fall into the same difficulty as myself, namely, non-toning of prints. The first bath I tried would not work by reason of the acidity, which I discovered by the ordinary tests for acid. Anyone working these baths will find that a lot of time, money, and trouble is saved.—Yours, etc.,

D. H. W. Preedy.

INSTANTANEOUS SHUTTERS.

Sir,—I fancy your correspondent "One who Doesn't Know" could not have read the article by "Tommy Atkins" in your issue of March 31st. Had he done so, on reading the words in my letter "Thanks to Tommy Atkins again, I have been enabled to decide which shutter I should furnish myself with," I think he would have remembered which shutter was mentioned by that writer, or failing to remember this he would on reference to the article in question have understood at once to which one I alluded, as the Thornton-Pickard time and instantaneous was the only one mentioned in that article.—Yours, etc., Animalculæ.

* * *

IMPORTANT NOTICE.

Amidol,	Metol,	Glycin,
or	or	or
Diamidophenol.	Monomethylparamidophenol.	Oxyphenylglycin.

Patents in all Countries.

Sir,—We beg to inform you, and we shall feel obliged if you will give publicity to the fact, that the patent disputes between the manufacturers of the above developers have been settled amicably by mutual consent, and in future the sale of same in Great Britain and colonies will be effected through the undersigned firms at even prices and terms.

All photographic dealers will supply these products at the retail prices advertised, and professionals as well as amateurs will no doubt continue to derive satisfaction from the use of these now well-known developers.—We remain, yours obediently,

Fuerst Bros.,
17, Philpot Lane,
London, E.C.,
Sole agents for
J. Hauff, Chemische Fabrik,
Feuerbach,
near Stuttgart.

Arthur Schwarz and Co.
(per Henry Wm. Cameron),
Dashwood House, New Broad Street,
London, E.C.,
Sole agents for Dr. M. Andresen,
Actiengesellschaft Fuer,
Anilinfabrikation,
Berlin.

Apparatus.

SWIFT'S NEW DETECTIVE LENS.

Messrs. J. Swift and Sons, of 81, Tottenham Court Road, have sent three specimens of these new lenses which they have specially constructed for snap-shot work. The special features which they possess are that for their focal length they possess great flatness of field with even illumination. Testing the lenses practically on a hand-camera, we have found them decidedly good, and at the low prices we can heartily recommend them to all snap-shot workers. The combinations are constructed of special Jena glass, and are placed closer together than usual. Iris diaphragms are provided, and the lenses are sent out of 5 in. and 5½ in. focus at £2 5s., and 6 in. at £2 10s. It is, of course, needless for us to state that these lenses will, when stopped down, cover far larger plates than those they are intended for, and may therefore be used as wide-angle lenses.

THE PROFESSIONAL MOUNTANT.

Percy Lund and Co., of Bradford, and Memorial Hall, Farringdon Street, have sent us a sample of the above, which we have found very useful for mounting gelatino-chloride prints when desiring to preserve a particular surface, either glazed or matt. The preparation is warmed by placing the bottle in warm water, and then a thin coat is applied to the back of the print. It will be found specially useful for workers of chloride papers. Prices: 5 oz., 6d.; 10 oz., 1s.; 18 oz., 1s. 6d.

THE CLIMAX DRY PLATES.

Messrs. J. J. Griffin and Co., of 22, Garrick Street, Covent Garden, have sent us a sample of these plates, which we have tested both with time and hand-camera exposures, and have obtained good results with. Though not so rapid as some other plates, being 22 to 23 degs. W., or 40 Watkins, they have yielded us good negatives with a good range of tones and brilliancy. Development is easy and rapid, and the negatives have more the character of the old wet plate, and there is great latitude in exposure. The prices are popular, viz., 1s. for quarter-plates, 2s. 3d. for half-plates; and Messrs. Griffin offer special terms for sample orders.

THE LOMBERG PLATE.

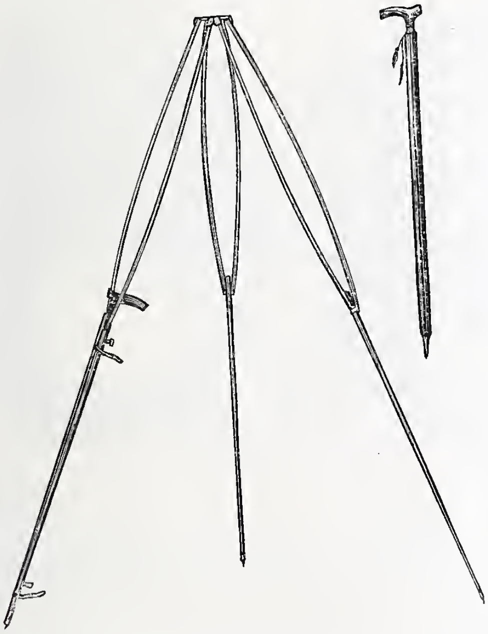
Messrs. E. Stiepel and Co, of 80, Bishopsgate Street Within, and 8, Union Court, have sent us a sample of these plates, which we have tested with satisfactory results. Although they have given us good results with pyro and amidol, the most satisfactory negatives, possessing a delicacy and modelling which is more pleasing, were obtained with an eikonogen developer prepared according to the formula recommended by the makers—

Eikonogen	1 oz.
Sodium sulphite (crystal)	4 ,,
Carbonate of potash	2 ,,
Hot distilled water	40 ,,

For ordinary work this may be used full strength, but we diluted it with an equal quantity of water, and obtained very soft results. For portraiture the plates seem specially suitable. Prices: quarter-plates, 1s. 4d.; half-plates, 3s.; whole-plates, 6s. per doz.

DOLLOND'S UMBRELLA STAND.

Dollond and Co., of Ludgate Hill and Old Broad Street, are placing upon the market a neat, light stand, which is specially suitable for hand and light cameras. It is rigid, light, and not ungainly in appearance, resembling an umbrella when closed. It opens to a good height, over 5 ft., and is well made. Price 21s.



CADETT'S SNAP-SHOT PLATES.

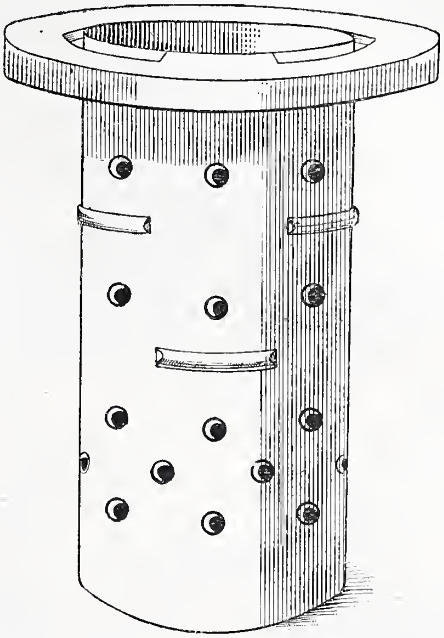
Messrs. Cadett and Neal have sent us a sample of their "snap-shot" plates, which show 125 on Hurter and Driffield's system. The plates develop cleanly, free from fog, and with good density, and being coated on special thin glass will find considerable favour amongst hand-camera and instantaneous workers. The prices are 2s. 3d. for quarter-plates, 4s. 10d. for half, 8s. 6d. for whole plates.

BEALE'S NONACTININE.

Mr. H. H. Beale, of London Road, Reading, has sent us a sample of the above, which is a deep-red solution, which can be used for applying to the backs of negatives for blocking out obtrusive boughs or objectionable details, and for putting in clouds. It will also considerably improve the printing characters of thin negatives, and will also serve as a backing medium. It is applied with a brush, and errors can easily be rectified by wiping out with a wet rag. It will prove a very valuable adjunct to the doctoring of negatives. Price 6d., 1s., and 2s. 6d. per bottle.

PAYNE'S CRYSTAL CAGE.

Mr. T. H. Payne, of Mexborough, Rotherham, has introduced this little article to facilitate the rapid solution of crystalline substances. It is made of white earthenware, and the body fits into a slotted top, which rests on the measure or jug in which it is desired to make the solution, and the height of the cage in the vessel is regulated by the projections shown on the body. It will be a useful contrivance in the dark-room. A small linen bag which acts as a filter is also included. Price, post free, 1s. 7d.



PROUTINGS LAWN STUDIO.

Mr. Prouting, of Fox Lodge, Tilehurst, Reading, is well known as the inventor of the above, which has found considerable favour with photographers, both amateur and professional. The outfit includes every essential for successful lighting, a good paper background, exterior and interior, and tent cover of striped canvas. The poles supporting the structure are jointed without any sacrifice of rigidity, and all woodwork is varnished and fitted in brass. The background works on metal brackets with cords and pulleys, and the whole fits into a neat travelling case, 5ft. by 6in., although when erected it covers a space of 5ft. by 5ft. by 7ft. 6in.

By the aid of this lawn studio an amateur can turn out portraits equal in lighting to any professional studio work. Its price is only £5 5s.

Reviews.

Hints on Enlarging. Published by the London Stereoscopic and Photographic Co., Regent Street and Cheapside, E.C. Price 6d.

Although written "with special reference to the use of the Stereoscopic Company's patent Black Band enlarging apparatus, this little manual contains numerous valuable little tips and dodges for the user of ordinary apparatus.

Photographic Procedure.

BY E. J. WALL,

Author of "The Dictionary of Photography."

SECTION VI.

DEVELOPERS AND DEVELOPMENT.

(*Continued from page* 231.)

Eikonogen.—This substance, patented by Dr. Andresen in 1889, is one of the recent organic developing agents which have received a good deal of attention and favourable notice from various workers. Like hydroquinone and the newer agents, amidol, metol, and glycin, it gives an image of a bluish black or grey colour, free from any brown tinge, as is the case with pyro, and development has, therefore, to be carried rather farther than old pyro workers are accustomed to. It has the advantage over hydroquinone of giving far softer results, that is negatives with less harsh contrasts; in fact, it is frequently advanced as a failing of eikonogen that it will not give sufficient density; and to remedy this, additions of hydroquinone, and even pyro have been recommended.

Eikonogen is not easy to preserve in solution, or to get in solution, its solubility being low, only about seven grains per ounce of water; and, further, its avidity for oxygen is so great that it readily oxidises and turns brown, even in solution with a sulphite. The best preservative is acid sulphite of sodium or an acidulated solution of sulphite of soda. A good formula for stock solution is Voight's, as follows:—

Acid Sulphite.

Sodium sulphite		170 gr.
Distilled water	to make	1 oz.
Hydrochloric acid		40 minims.

Dissolve in the above order.

Stock Solution.

Eikonogen		125 gr.
Sodium sulphite		625 ,,
Distilled water	to make	25 oz.
Acid sulphite, as above		1 ,,

Dissolve in the above order.

Another convenient formula is:—

Eikonogen		125 gr.
*Acid sulphite of sodium		½ oz.
Distilled water	to make	25 oz.

For accelerators we may use either caustic alkalies or the carbonates, and having this choice gives us far more control over our negatives than would otherwise be the case. For ordinary work it is not advisable to use the caustic alkalies, and carbonate of soda may be used where soft results are desired, whilst potash gives us a little more contrast and density.

I cannot do better than quote here an article I have already written on this subject, and since the appearance of which my views have not altered as to the best method of working with this agent:

One of the most important points when using eikonogen as a developer is the temperature of the solutions. At 32 deg. F. its developing power is practically none, and its power increases with the rise of temperature; the temperature of the developer should be about 65 deg. F. to obtain the best results.

Briefly formulating a method of development with eikonogen, we arrive at the following conclusions: *Under-exposure and instantaneous shots:* Use either of the caustic alkalies; or with extreme under-exposure or very sharp snap shots, use a one-solution developer compounded on Warnerke's formula, which is as follows:—

Eikonogen	1 oz
Caustic potash	1 ,,
Sodium sulphite	2 ,,
Distilled water (boiling)	10 ,,

We have deprecated the use of one-solution developers, but as the addition of caustic alkali enables us to obtain a much greater concentration of solution, it is useful for instantaneous work. The above solution should be diluted with from three to ten parts of water as required, more water giving softer results. Where only slight under-exposure exists, the use of a mixed accelerator of caustic and carbonate will be found useful, and the caustic may be increased as desired or found necessary. *Normal exposure:* For portraiture, carbonate of soda should be used, as in all cases where softer effects are desired; for out-door or landscape work, carbonate of potash should be used, and with a small addition of bromide of potash. *Over-exposure:* In cases where over-exposure is known to exist, practically the same method of development may be adopted as with pyro, viz., increase of bromide and reduction of accelerator, which should be carbonate of potash.

We have given about two formulæ for stock solutions of eikonogen: we now come to stock accelerators.

CARBONATE OF SODA ACCELERATOR.

Carbonate of soda	300 gr.
Distilled water, to	10 oz.

CARBONATE OF POTASH ACCELERATOR.

Carbonate of potash	150 gr.
Distilled water, to	10 oz.

One part of these may be mixed with an equal quantity of eikonogen stock solution and applied to the plate. The caustic alkalis should only be used in cases where such are indicated as above, and stock solutions may be prepared either in 10 per cent. or 20 per cent. as desired, and they should be added, drop by drop, so as to avoid frilling and fogging of the film. A good all-round accelerator, which gives excellent results, and which can be modified with extreme ease, is the following:—

Carbonate of soda	400 gr.
Caustic potash	50 ,,
Distilled water, to	20 oz.

One part of this may be mixed with an equal quantity of stock eikonogen. If development hangs fire at all, or the plate shows signs of under-exposure, add gradually, or drop by drop, watching the action after each addition—

Caustic potash	120 gr.
Distilled water, to	1 oz.

Of the application of eikonogen to lantern and bromide work we cannot speak at present, but in our opinion it is far superior to ferrous oxalate or hydroquinone for this purpose.

It is advisable when using eikonogen to employ the acid fixing bath as obviating all stains, and hardening the film and preventing frills and blisters, which are liable to occur when forcing plates with caustic alkalies. The superiority of eikonogen over pyro and hydroquinone is manifest, particularly in developing snapshot and portrait work, as, no matter how dense the high lights and how weak the shadows, the resulting prints are far softer and more harmonious than would be the case with the other two reducing agents.

Catalogues.

PRICE LIST OF PHOTOGRAPHIC APPARATUS. Pearson and Denham, 5, New Station Street, Leeds.

A well-compiled and illustrated price list of eighty pages, containing every requisite for photographic work and numerous formulæ, which will be found exceedingly useful in practice.

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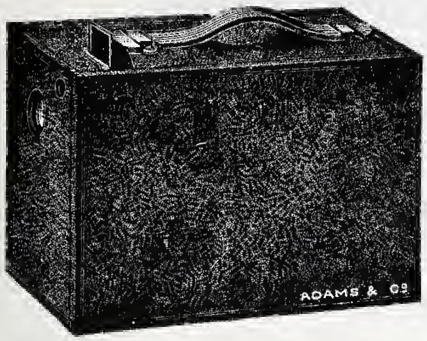
* Theonine, sold by Marion and Co.

HAS THE LARGEST SALE, AND GIVES THE GREATEST SATISFACTION.



The 1893 'IDEAL.'

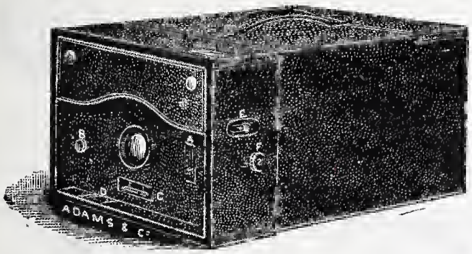
"If you want the best Hand Camera, for use on land or sea,
You'll find our new 'IDEAL' will suit you to a T."

THE following facts are interesting. Many will, doubtless, remember the magnificent results obtained by the "IDEAL" in the last great PHOTOGRAPHY competition. This year we are again at the top. No less than 1,041 prints were sent in for competition. and leaving out Home-made Cameras, 28 figure in the award list. Out of these no less than **15 "IDEALS" and 1 "ADAMS"** carry off the prizes; thus, in this gigantic world-wide competition, we have beaten all other makers of cameras put together. This is quite what we expected, for we know that the "IDEAL" has been proved over and over again, at numerous exhibitions and competitions, that there is no other camera that can at all compare with it for excellence of workmanship. We prove what we assert, and any person who intends purchasing a Hand Camera should buy one that is proved to be reliable and efficient.

IMPORTANT NOTICE.—The Pneumatic Shutter is now accurately timed from 1 second to 1-100th.

It is the ONLY Automatic Camera that is entirely free from complications, and the only one that CANNOT get out of order. EVERY CAMERA IS GUARANTEED.

No. 1.—Fixed Focus, best Rectilinear Lens	£7 nett.
No. 2.—Made to Focus, with Wray Lens	£8 10s.



THE "ADAMS" HAND CAMERA.

A Perfect and Magnificent Instrument.

Takes 12 Plates, Roll-holder, or 24 Cut Films, is fitted with a Focussing Screen for use as an ordinary Camera, 5 by 4 Ross R. R. Lens, and Patent Pneumatic Shutter, and weighs complete, with Changing-box, 4½ lbs only.

The Highest Class and Most Perfect Hand Camera it is possible to buy.

Price for ¼-plate, complete in Case, with one Changing-box, FIFTEEN GUINEAS NETT CASH. Extra Changing-boxes, 45/- nett. Roll-holder, including Fitting, 47/6 nett. 5 by 4 ditto, EIGHTEEN GUINEAS NETT CASH. Extra Changing-boxes, 55/- nett. Roll-holder, including Fitting, 52/6 nett.

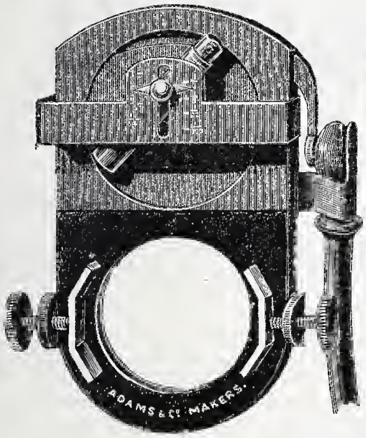


Fig. 2.

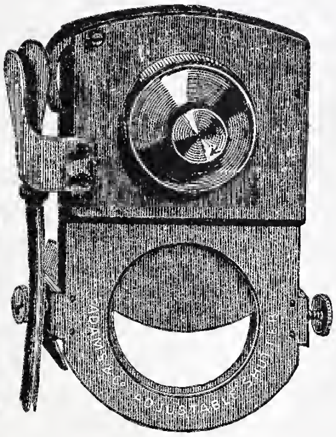


Fig. 3

Adams & Co.'s "Adjustable" Shutter.

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TIME and Instantaneous, with pneumatic regulation. We regard this as the best and most complete all-round Shutter made. It is exceedingly light, compact, and reliable. As will be seen by Fig. 2, accurate speeds are marked upon it, and it is merely necessary to point the Indicator to the speed required.

Time exposures of any duration may also be given.

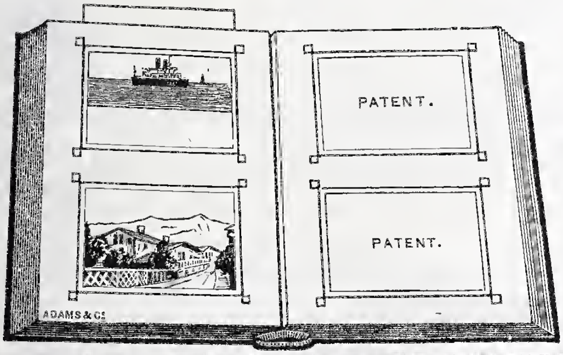
It will also be noticed that the tongue of the Shutter is raised and lowered by a circular movement, thus preventing the usual amount of vibration found with similar Shutters. This circular motion prevents the tongue from striking the top and then rebounding.

Fig. 2 also shows the mode of affixing to Lenses. This is done in a far simpler manner than with any other Shutter, as no special fitting is required. It will be seen that there is a good range for size of Lenses, and a ¼-plate Shutter will fit any ¼ plate Lens, and a ½-plate any ½-plate Lens, and so on.

Another important point for most workers, is that the necessary extra amount of exposure is afforded to the foreground. It is made of aluminium, and is extremely suitable for foreign work, and is so small and light that it can be carried in the waistcoat pocket.

The outside dimensions of a ¼-plate Shutter are 3⅜ by 2¾; ½-plate 4 by 3¼; whole-plate, 4⅞ by 3½.

Prices for the ¼-plate complete, **25/-**; ½-plate, **27/6**; whole-plate, **32/6.** Postage **3d.** extra on each. The above prices are strictly nett.



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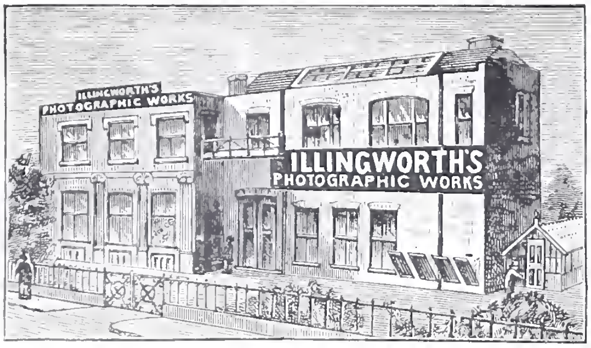
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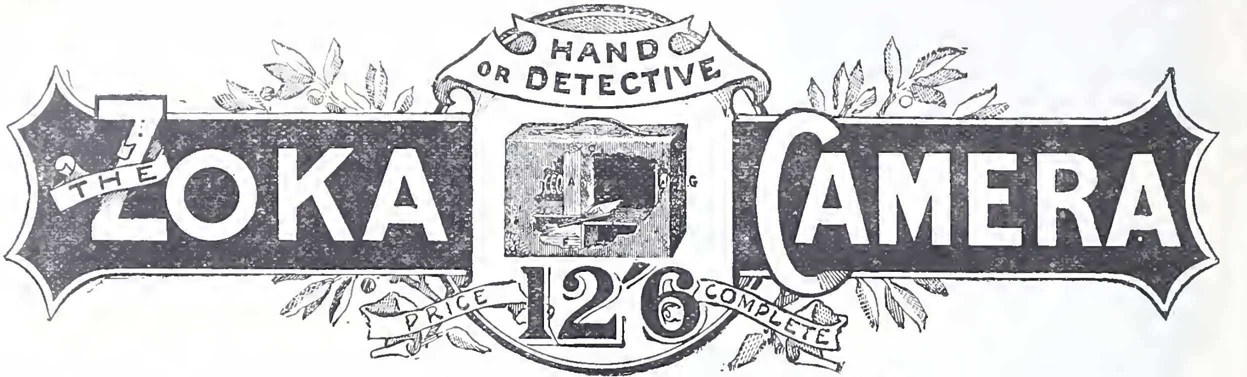

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NO ENTRANCE OR OTHER FEE.

The Editor of the "AMATEUR PHOTOGRAPHER" *has consented to act as Judge.*

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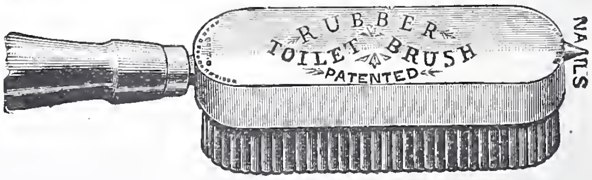

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The Status of Hand-Camera Work.

By A. Horsley Hinton.

It is proposed to form a society for hand-camerists, and on the principle that the association of men of kindred tastes and similar pursuits tends to that proverbial strength that comes of union, there seems little reason for deprecating the scheme or discouraging its consummation.

And yet, with those to whom photography is something more than the trivial occupation of leisure hours, the suggestion of a society for those who use a hand-camera savours of a good deal that will neither promote the well-being of photography or lend dignity or importance to any of its applications.

It is all very well for some to say, "What matter so long as we amuse ourselves?" but it may be well to remember that the practice of photography has now become a vast organisation, and has certain social, literary, and artistic obligations upon which many depend, which constitutes a certain factor even in the civilisation of our times, and, whether we will or not, does largely influence thought and taste of to-day. Hence it is not a matter of such little importance whether photography advances and improves, and then in the same advance and progress each new institution and every new departure plays its part for good or for bad, and is therefore deserving of consideration.

Supposing some had not disinterestedly devoted themselves to the careful scientific investigations and experimenting which have led to the simplification and perfecting of the process which we use, photography would have been denied to all but a few, and the representations of distant lands and beautiful scenes would never have been as familiar to all as they are now. If many had not lifted their voices in encouragement of good work, and pointed out how some of the principles of arrangement and composition which govern the work of artists might with advantage be applied to the productions of photographers, photographs would have maintained a level of mediocrity for long, and would never have received the encouraging praise and admiration of the cultivated and intelligent public.

Let photographic clubs and societies degenerate to the level of skittle grounds and cockfighting, and it will lose its status, notwithstanding how admirable its productions.

That the foregoing comparison is inappropriate and somewhat meaningless I am aware, but I feared to give offence by naming such sports and pursuits whose clubs probably claim many supporters and members amongst my readers.

Photography as a science or as an art will only advance as its respectability, so to speak, is maintained; it will advance only in proportion as it asserts its right to be recognised as among the refinements of the age, as an outcome of culture and education.

Cheapen it, vulgarise it, and it will fall into disrepute. Already serious and intelligent work is well-nigh swamped by the flood of triviality, and the conscientious endeavours of the few paralysed by the unsympathetic ignorance of the thousands who buy a camera and learn how to use it with little more purpose than to kill time.

If one be really fond of photography, he will wish for its advancement for its own sake, and if he have any respect for his own name as a photographer, he will lend a hand to suppress those things which are derogatory to the reputation of the art to which he is devoted, and will make an effort to elevate it and defend it from indignity. Need I more excuse if aforetime and now I speak of some photographic matters in a more serious tone than some would think necessary?

And why are these thoughts prompted by the announcement of a Society of Hand-Camerists?

Well, it appears to me that small good can come of a society the only apparent reason for association being the employment of a particular kind of instrument or machine.

We have boating clubs for men who find pleasure in sculling in boats, and cycling clubs for those who ride "cycles," but surely it will be granted that photography, if it is anything, is a something possessing a higher status than either of those modes of exercising the body. Photography as a sport must be a failure, for to be successfully carried out it demands a seriousness of endeavour, a certain shutting of oneself away from the society of many; it has none of the exhilarating effect of pure physical exercise, and only perhaps in the very early efforts of the tyro does the excitement attending the uncertainty of results lend a fascination. Photography as a mere pastime rises little above a mere plaything and a toy which grown men despise, unless it be to purchase a "beginner's set" for the lad at school, as an alternative to a cricket bat or pocket knife.

Rather surely should a photographic society or camera club be allowed kinship with the many bodies of scientific, literary, or artistic men, the existence of which are powerful, though often unseen, factors in the daily life of cultivated peoples, and such relationship can only be expected if photographers show themselves worthy.

So that it appears to me there is a great danger of many of the camera clubs assuming too much of the "social meets," "prize competitions," and "record breaking" character, and particularly so when the professed purpose of the club is to assemble those whose object is not so much photography as a hand-camera.

I would look at this question not from any personal and prejudiced aspect, and for once I will draw no comparison between the society in question and any artistic body, but say, would it be reasonable amongst a number of botanists to form a society, the nominal qualification for membership being the size of the specimens in his herbarium or the pattern of "spud" or knife with which he gathered them? And the same might be said of astronomers, chemists, geologists, and others.

The nearest likeness I can think of is the popular microscopical society, which nowadays obtains in almost every important town in the kingdom, where too often the mere use of a magnifying instrument constitutes a reason for membership. But I never yet heard of one which confined itself to those who used a microscope of any particular size or pattern.

After all, it is not the instrument or the manner of using it, but the motive with which photography is employed, that shall give it dignity and lasting success.

If it is thought desirable to separate photographic work accomplished with a *hand*-camera from all other branches of photography, and establish as it were a new "ology" or "ism," then we may spare our remarks and wait awhile to see how things develop. Out of natural history came the new science of biology, and there was good cause for its being; from geology palæontology became sub-divided, with ample reason for separation; but that photography with a hand-camera can be said to possess for long anything distinctive seems hardly likely; but *tempus mutantur* and are changing still.

(*To be continued.*)

* * *

Leigh.—Ordinary meeting held on 13th inst., Mr. T. L. Syms presided over a good attendance. The fifth of the series of competitions was held, this being an animal study. Mr. R. Leigh gained the first prize with "Mowing," Mr. Syms second with "On Guard," Mr. John Battersby third prize with "Out with the Dogs" Mr. M. F. Burrows explained the use of the Frena camera, and exhibited some excellent negatives taken in Ireland. This being his first experience with a camera, surprise was expressed at such satisfactory results with a hand-camera.

The A B C of the Lantern.

Colouring Lantern Slides. Before the advent of the now familiar photographic transparency, the slides used for the purposes of optical projection were drawn and painted by hand upon glass. Some of the slides so produced were exceedingly artistic, but were also very costly, a single slide frequently costing as much as £2. In order to give the artist greater scope for the exercise of his talent, the slides themselves were frequently of large dimensions, a circular picture of six or seven inches in diameter being a not unfrequent size. These large slides involved of necessity the employment of large condensers, so that a high-class lantern entertainment was in those days a somewhat costly matter. Such slides were in every-day use at the old Polytechnic at the time when, as many of our older readers will recollect, Professor Pepper used to delight his audience with marvellous dioramic effects produced by the aid of the optical lantern. For these large coloured transparencies some very high prices were frequently paid; indeed, we believe as much as £20 for a single slide. With the introduction of photographic slides and the adoption of a standard size, the occupation of the professional slide painter was almost gone, for although coloured photographic slides are still largely used by professional lecturers, the same high degree of skill on the part of the colourist is not essential; nor is the amount of brush-work bestowed upon the slides by any means so great as when they were entirely hand-painted. The present process of slide colouring may perhaps be more correctly designated as tinting, the light and shade and detail of the photographic image being so perfect as to scarcely need more than a mere suspicion of colour. It is an open question whether a photographic slide which is as perfect as technique and art can make it is capable of further improvement by the application of colour. We, ourselves, rather incline to the opinion that colouring such a slide detracts from rather than adds to its beauty. We now refer, of course, to photographs of natural scenery, and not to copies of paintings, diagrams, etc., which latter may often be considerably improved by skilful colouring. A general audience will often prefer coloured or tinted slides to those which are quite plain, and, therefore, it becomes necessary to briefly describe the manner in which the colouring is effected.

In the first place, either oil or water colours may be employed; but as the gelatine slides have now become so popular, and as water colours do not take kindly to anything of a gelatinous nature, unless the surface is specially prepared, we shall only describe the use of the oil, or, to speak more accurately, the varnish colours. Those who are interested in the subject, and who wish to study it in greater detail, should apply to Messrs. Brodie and Middleton, the well-known artists' colourmen in Long Acre, for a copy of their handbook upon the colouring of lantern slides, which gives every information as to both methods of working. With collodion slides, either wet or dry, the difficulty above referred to does not occur, and either water or varnish colours may be employed. We have had some experience in both methods of working, and we believe that most people will agree with us when we say that the varnish colours are far easier to work with, especially for those who are not acquainted with the use of the brush, than are colours in which the medium employed is water.

We should state at the outset that the slide-painter has by no means the same variety of pigments at his command as he would have when painting upon an opaque basis, the reason being that only the transparent colours are available. Either the ordinary colours ground in oil, and sold in collapsible tubes, may be used, or specially prepared colours mixed with a kind of transparent varnish can be obtained from the firm previously referred to; the latter are preferable if they can be procured. It is not necessary to purchase a great variety of colours, for if a judicious selection be made at starting, it will be found possible to obtain, by judicious blending, almost any tone or tint which may be required. The following colours will be found sufficient at the outset:—

Crimson Lake.
Italian Pink (a rich yellow).
Chinese Orange.
Indigo.
Prussian Blue.
Burnt Sienna,
Ivory Black.

A tube of medium, specially prepared for thinning the colours, should also be obtained, or failing that, some of the vehicle ordinarily employed by the painter in oils, and called Magilp, may be used. Half a-dozen small camel-hair or sable brushes will also be required, together with some spirits of turpentine to free them from colour, and, lastly, a bottle of transparent varnish.

Having procured the necessary materials the actual work of painting can be commenced, but, first of all, a support for the transparency will be necessary. For this purpose nothing serves better than an ordinary retouching desk, and if that be not available a roughly-made substitute must be devised. It will be no use attempting to colour a slide by laying it upon a sheet of white paper, for it will be impossible to properly judge of the effect of the colouring as the work proceeds. Another word of warning may not be out of place, which is that slide-painting should not be attempted by artificial light, for the simple reason that it is impossible to properly estimate the relative values of the greens and yellows, two colours which, of course, are more employed than any others in ordinary landscape painting.

Those who have no knowledge of painting, or of the use of the brush, will not find the colouring of lantern slides particularly easy work, and some considerable practice will be required before anything approaching perfection is attained. Some subjects will, of course, be easier to deal with than others, but we will suppose, for the sake of example, that the slide selected is a landscape with distant mountains, and some trees and rocks in the foreground. Assume also that the sky is quite clear glass and devoid of clouds, because that will render the colouring of it less difficult. The slide is placed upon the easel (its covering glass having been previously removed), and a small portion of prussian blue squeezed upon a clean plate, not more, however, than is absolutely required; for the colour, after it has once dried, cannot be used again. A clean brush should then be dipped into the special medium, or the magilp, and worked into some of the colour until the depth of tint required is obtained. The sky should then be painted in, beginning at the zenith and working down to the horizon. The quantity of colour should be decreased, or thinned, as the horizon is approached. Now it will be found, be the paint applied as carefully as it may, that it will be impossible to avoid ridges and uneven brush marks appearing on the sky; this cannot be avoided, and is quite immaterial. as all such evidences of want of skill will disappear in the next operation, namely, that of "dabbing." Now dabbers may be made of various materials, some workers using a pad of washleather stuffed with cotton wool, but most experienced slide painters prefer to simply use the tip of the finger. If the tip of the finger, therefore, be lightly but quickly dabbed on the upper portion of the sky, we shall find that we gradually obliterate the brush marks, and obtain an even sky, gradually shading off in depth until the horizon is reached. The novice had better in his early attempts confine his attention to plain skies, but he will probably sooner or later desire to introduce clouds. These are produced by removing the colour from the picture whilst the paint is still wet, a sharp-pointed match, covered with a piece of wash-leather, being usually employed. Sunset effects are obtained by painting the upper portion of the sky with the blue colour, following with a line of crimson lake, and then near the horizon a thin line of yellow. These colours are then carefully dabbed, beginning with the blue and cautiously merging the tints one into the other; some skill will be required to perform this work satisfactorily. If any of the sky colour has been allowed to overlap the distant hills, it must be removed at this stage before the colour dries, with the wash-leather and stick. The mountains or hills can then be tinted in with purple, obtained by mixing on the palette, or plate, some Prussian blue or crimson lake; this should be applied sparingly, distance always subduing the effect of colour; shadows may be strengthened by increasing the blue. The foreground can be treated more boldly, and a greater depth of colour can be laid on. Different shades of green are obtainable by mixing Prussian blue, or indigo, with the various yellows, but the greens should be painted slightly bluer in tint than it is desired they shall appear when projected, artificial light always making them appear more yellow than they are in reality. Too much colour should not be put on at once; if it is desired to strengthen any part of the slide, the paint should be allowed to thoroughly dry, and then more colour can be applied—this operation is called "glazing."

The great enemy to success in slide painting is dust, and every possible precaution should be taken to avoid it, particularly during the period of drying, which may be allowed to take place spontaneously, or accelerated by the application of a moderate degree of heat. As soon as the paint is thoroughly dry the cover glass should be adjusted and the slide rebound.

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Exhibitions.

Society.	Entries close.	Opens.	Closes.	Address of Secretary.
National Photographic Exhibition, Crystal Palace ...	—	April 10	April 29	
Philadelphia (U.S.A.) Phot Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.
National Sportsman's Exhibition (Photo. Apparatus Section).	—	April 24	May 6	Royal Aquarium, Westminster.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B

THE CRYSTAL PALACE EXHIBITION.

(Second Notice.)

Following the comments upon the apparatus in our last issue we shall this week deal with the Art Division.

In justice to ourselves we must preface our observations with a grumble. At the time of our visit on Monday, the 8th inst., the opening day, no catalogue was obtainable, and many of the pictures remained unhung. Under such circumstances the task of criticism was by no means an enviable one; the difficulty of identifying certain works being increased by the general disregard of the rule that all exhibits should bear the title of the picture and the exhibitor's name upon the front.

Speaking of the Art Section as a whole, it does not approach, either in the number of pictures shown or in the quality of the work, any of its predecessors, nor is it by any means so representative, many well-known exhibitors, both amateur and professional not competing. Indeed, we may say at once that were it not for the substantial support received from the various photographic societies in sending collective exhibits, the amateur section would be practically *nil*. The lighting, even when the Exhibition has been held much earlier in the year, has always been trying, but the glare of unsubdued sunlight which on a bright spring day pours down upon the pictures, is exceedingly trying to any photographs whose charm consists in softness and atmospheric effect, and we think, in common justice to the exhibitors, the Executive might have provided head screens of muslin to diffuse and soften the aggressive top-lighting.

Dealing first with the Society Collective Exhibits, in which, as we have already intimated, the best amateur work is to be found, we noticed in the Tunbridge Wells collection some very careful, clean work by the Secretary, Joseph Chamberlain, including two or three groups taken in Cairo, the technique of which was excellent. Notable also are the oriental interiors of E. R. Ashton, which we recognise as being fellow-prints to a set which recently obtained a Silver Medal in our "Holiday with the Camera" Competition.

The Hove Camera Club's exhibit is the smallest of the Society collections, both in the number and size of the exhibits, the majority of the pictures being either half or quarter plates, but among the latter are several that will repay close inspection. "The Fringe of the Mere" is a delightful little study, the rough paper upon which it is printed contributing greatly to the atmospheric effect. Among other pictures worthy of mention are a set of hand-camera views by Chas. Job, but we cannot congratulate this competitor upon his "Down the Thames," a snap shot (evidently taken from the stern of a vessel) of a boat towed behind, the point of view and the depression of the lens having produced a literally "*down* the river" effect.

The Birmingham Society have again to be congratulated upon a very good show, the average merit being high, there being, in fact, very little really indifferent work. If the observance of rules is to be insisted upon, this exhibit should be disqualified, for no name appears upon any picture, and titles are in many cases absent. The exhibit is particularly strong in architectural subjects, specially noteworthy being a frame, No. 158, containing a series of whole-plate prints in platinum. Very good also are Nos. 163, 167, and 169, the latter three presumably by the same hand. Portrait work is stronger in this collection than in some others, No. 150 being a fine study, the pose natural and easy. We cannot, however, congratulate the producer of No. 132, "The Captive Andromache," and we tender his fair model our sincere sympathy; surely the portrayal of such subjects is beyond the pale of legitimate photography. "Hiawatha" is equally ambitious, and open to the same criticism, and the imitation marble wall-paper background betrays its origin. "Day Dreams," however, by the same competitor, is a charming study simply but effectively treated. No. 100 we hardly know whether to accept as a picture of a lady or of a curtain. No. 125, "Simple Beauty and Rustic Health," is a capital figure study in which the drapery has been very skilfully managed. No. 121 is a striking portrait badly hung at the top of the screen.

We next come to the Hackney Society's collection, which, however, contains a large proportion of previously exhibited work. The best picture shown is probably S. J. Beckett's 194, "Gudvangen Norway." This gentleman's work, however, is rather uneven in quality. The sky in No. 179, "A Study of Sheep," strikes us as being unnatural, and appears to owe its origin more to the brush than to the lens. Two of J. Carpenter's flower studies are well hung, of which No. 193, "Tea Roses," is, we think, the better. No. 210, a church interior, by Dr. Roland Smith, is an effective bit of interior work, the light streaming in from a side window being well rendered.

Coming to the South London exhibit, the President, F. W. Edwards, is well represented by some of his large interiors, and also by a very fine platinotype from a panel by Tinworth, representing "The Last Supper." Mr. Oakden runs his President pretty closely in his own particular line, "The Prior's Door, Ely Cathedral," being specially good. James Miller shows several rather unconventional views taken in South Africa, No. 219, "A View of Cape Town," having more the appearance of a painting than a photograph, this effect being probably due to the sub-tropical character of the foliage. No. 223 is happily a subject which does not often present itself to the photographer, and represents a ship driven upon a lee shore by a fierce sou'-wester gale.

The collection shown by the West London well maintains the reputation of the society, its distinctive feature being the artistic merit of the pictures, there being very few of an essentially topographical character. Specially worthy of commendation is Leslie Selby's "Evening Calm" (330), in which the effect implied by the title is faithfully rendered. It is one of the best pictures in the exhibition. L. C. Bennett is represented by several good pictures, of which, perhaps, the best is No. 356, "Erith Pier." C. Winter has a good frost study, 334, which he calls "The First Touch of Winter," and a portrait study which is a capital example of good technical photography. The President (J. A. Hodges) is represented by three pictures, "Drear December," "Softly Falls the Ev'ning Light," and "The Wane of Day." Other noteworthy pictures are G. Lamley's "Evening on the Clyde," W. S. Rogers' "Beneath the Elms," Chas. Whiting's "Early Morning," and J. J. Adams' "Frozen Swamps." The smallest picture in the exhibition is contributed by W. H. Whitear, No. 359, "The Moonpath," and we commend it to those who see merit only in pictures of large dimensions.

In the exhibit of the Brixton and Clapham Society, two frames of quarter-plate views by W. Thomas, every one of which is a gem in itself, at once arrest attention. "Stormy Weather," a large picture by the same gentleman, of a storm-beaten rocky headland, is boldly and effectively treated, and one almost feels the cold wind and salt spray. In "When the Sun Sinks," J. H. Edwards has well caught the soft hazy effect of evening light. Dr. Reynolds exhibits a copy of an old engraving printed in platinum, which, by soaking in an infusion of tea, has had imparted to it an appearance of age, a process which will prove of value in reproducing certain desired effects. One or two other society exhibits were not hung at the time of our visit, which fact will account for their not being noticed here.

Turning now to the general exhibits, we have in frame 391, a series of very beautiful miniatures by the Esmail burnt-in enamel process. No. 372, a portrait of a girl with an aureola round her head, the design for which seems to have been suggested by the photo-micrograph which hangs just above. No. 406 is a remarkable photograph, reflecting great credit upon its producer, J. E. Gould; it represents a torpedo just leaving a ship's side, and travelling at a velocity of forty feet per second. The same exhibitor's "Autumn" (410) and "Early Morning" (411) are among the best landscapes in the exhibition. Mr. Marsh, of Bognor, has a pair of pretty pictures of a newly-hatched chicken emerging from its shell.

Next in order come a remarkably fine series of large direct photographs, by Messrs. Poulton and Son, Lee, of well-known localities at home and abroad, which are fine examples of professional photography. But surely it was decidedly bad policy to show silver prints on deep-tinted albumenised paper, side by side with such capital platinotypes as "Sweeden Bridge, Ambleside," and "On the Brathey," which are perfect examples of good technical photography.

F. Treble has a large collection of portrait work, in highly ornate frames, including a striking portrait of John Burns. A great deal of this is done by the Incandescent Gas-light, and comparing them with daylight prints, there is not a pin to choose between them. Mr. Goodwin, of Norwood, has some good work characterised by softness and delicacy of treatment.

Messrs. Perken, Son and Rayment have an alcove containing a series of enlargements of the prize-winning pictures in the competition recently promoted by them. The enlargements, though of considerable demensions, *i.e.*, 18 by 24, are as sharp as direct prints, and certainly afford striking proof of the optical excellence of the lenses issued by the firm. "The Harbour, Dordrecht," and "Waiting for the Tide," by J. W. Welch, are particularly noteworthy. The originals of these two pictures, which are only quarter-plate in size, are also exhibited, and show a remarkable crispness of definition. A 12 by 10 photograph, "Handel's Organ," by J. H. Gear, taken with a 9 by 7 Euryscope, also speaks well for the covering power of these lenses. But the finest print is certainly that of "Three Sisters;" the beauty of the faces and exquisite technical results give great credit to the lens, and the user, Mr. Wickens, of Bangor.

Messrs. Morgan and Kidd show an enlargement of Brobdignagian proportions, measuring no less than eight feet by five, representing a scene in "Hypatia," which will certainly tend to maintain the reputation of this firm in this branch of work. Near by is what we take to be a direct platinotype enlargement (from a negative by Van der Weyde, of Miss Mary Anderson), which appears to us to be a striking instance of the superiority of the latter process in richness, gradation, and colour of deposit.

Undoubtedly the finest exhibit in the professional section is that of Warneuke, of Glasgow, a commendable feature of this gentleman's work being the comparative absence of retouching. His "Desdemona" is certainly one of the finest figure subjects we have seen, pose, modelling, and colour being alike faultless. Mr. Warneuke is ambitious, but whatever he attempts he generally succeeds in, and this may be said of his large direct full-length figure studies, 3 ft. 6 in. in length. All the exhibits are in rough sepia platinotype.

Douglas Pym, of Streatham, has a screen to himself. His most striking exhibit is a series of three pictures, entitled "Dad's Pipe," in three acts. "Repose," a semi-nude female figure, reclining on a modern sofa, is a type of photograph which we fortunately seldom see upon the walls of an exhibition; it strikes us as being vulgar and in violation of good taste.

The Judges at this exhibition have issued their awards:—The National Challenge Cup for the best collective exhibit of any photographic society has been awarded to the West London Photographic Society. The gold medal for the best alcove, containing exclusively one man's work, goes to Mr. W. M. Warneuke (Glasgow); silver medal to Mr. E. T. F. Goodwin (Upper Norwood); bronze medal to Messrs. Morgan and Kidd (Richmond); and a bronze medal for the best screen, one man's work, to Mr. A. R. Dresser (Bexley Heath). In the Art division, silver medals are awarded to Messrs. William Howell, C. H. Oakden, W. J. Wright, J. E. Gould, C. Job, E. Hawkins, G. Hankins, and Miss A. Heath; bronze medals go to Messrs. F. W. Edwards, G. H. Cutt, and R. H. Lord; certificates to Messrs. Douglas Pym, E. M. Stone, and C. Court Cole. In the Scientific class a silver medal is awarded to Sir Henry Roscoe, F.R.S., D.C.L. Lect., and Joseph Lunt, B.Sc., F.C.S., conjointly for photomicrographs of bacteria found in sewage; and a bronze medal to J. Carpenter for his studies of flowers. In the Lantern-slide division silver medals are awarded to Messrs. G. E. Thomson, F. Goldby, W. Errington Cowan, and F. Anyon; bronze medals to Messrs. P. H. Fincham, J. Shaw, G. Bingley, J. O. Grant, W. C. Beetham, and E. Dockree; certificates to Messrs. H. Holt and W. Taverner. The Judges were engaged for more than two days making their awards; upwards of one thousand frames are hung, containing at the lowest computation some two thousand prints. The lantern-slides are also very numerous. Every evening they are exhibited to crowded audiences in the theatre.

THE WEST SURREY PHOTOGRAPHIC SOCIETY.

The fifth annual exhibition of this Society was held on the 10th inst., and remained open till the 15th. The competition was limited to the work of members of the Society, there being no open classes; a far more satisfactory course for a suburban society to adopt than to assist a few pot-hunters in maintaining a questionable notoriety and in adding to their collection of medals.

There were a fair number of pictures exhibited, about 180 in all, and the work generally struck us as being quite up to the average of society shows. If, however, the editorial comments which appear in the current number of the *Photographic Gazette*, the official organ of the society, may be accepted, it would appear that some ground for dissatisfaction exists. Be that as it may, we should certainly have thought that a larger proportion of members than twenty-four out of a total membership of 100 might have assisted the executive by exhibiting. We think, as a general principle, and not in regard to the West Surrey alone, every member should send at least one picture to the annual exhibition of the society to which he belongs. We feel inclined to ask, is the medal system the deterring influence?

Dealing with the pictures in their numerical order, Nos. 2 to 6, by F. P. Smith are evidence of good technical work and a mastery of the platinum process. Mr. E. Calland although an exponent of the ultra-fuzzy school, exhibits in No. 12, "A Portrait," a picture that will command attention, whatever be the opinions of the observer upon the legitimacy of such methods of treatment. In the next frame, No. 13 "Seeing the Show," we have three pictures of a very different character, and one which, as a study of facial expression, Frith would have revelled in. We afterwards saw a lantern slide of the same picture, and were informed by its producer, Mr. P. Martin, that the negative was taken in a Facile detective camera upon the sands at Yarmouth, the platinotype print being made from a negative enlarged from the small original, but so well has the work been done that not even an expert could detect the fact. "Waiting for Spring's Awakening Touch," by W. Winsford, is a pretty subject carefully treated. A. R. Berry shows a capital enlargement printed in carbon of "St. Paul's Cathedral," which, however, was entered "not for competition." In Nos. 22 and 23, G. H. James has two very artistic little landscapes admirably printed in carbon, but we think the extremely large dimensions of the mounts used, 24 by 12 for a quarter-plate picture, tend rather to an eccentricity which would be better avoided. Equally meritorious is the same gentleman's portrait, in carbon, of "Miss Winnett," the pose being unconstrained and easy, P. Martin, in No. 35, "Evening on the Thames," has not been so successful, the shadows being heavy and lacking in luminosity. Nothing strikes us as being particularly noteworthy until we reach No. 86, "Showery Weather," by E. Swingler, a very pretty riverscape in which the sky is a trifle too deeply printed to be in perfect harmony with the rest of the picture. In 94, "A Lowestoft Smack," F. R. Ball, we have an effective picture, though rather low in tone. Nos. 103 to 107 are delightful little quarter-plate studies by W. Graham, and we should not be surprised if they were to secure a place in the "Evening" Competition in which they are entered. No. 117, by W. R. Graham, is also a beautiful little gem which we should like to see enlarged. Nos. 118 and 119, "Richmond" and "Tooting Common," C. A. Brignall, are bright, clean prints on

From Monday, April 17th, 2 p.m., until Saturday, April 22nd, 5 p.m.

Hours, 10 a.m. to 8 p.m.

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I may say that I had come to the conclusion that whilst your plates were certainly cheap (they were also equally certain) nasty.

THE TRIAL.

Now I have exceedingly great pleasure in reporting that the six dozen plates I ordered have **turned out of the highest character.** *Out of the 72, I have only lost 6 from over exposure, as at first I did not appreciate their extreme rapidity.*

RESULT.

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gelatino-chloride paper, but marred by the oval cut-out mount with gilt bevell edge upon which they are placed.

JERSEY AMATEUR PHOTOGRAPHIC SOCIETY.

This show was opened on 12th inst. Taken as a whole, and judging by a brief examination, the exhibits, though perhaps not so large as in 1892, are generally of high quality and will merit careful inspection.

We append the official prize list:—

Class I. (Landscapes).—Silver medal, Mr. Hammond Spencer; bronze medal, Captain Gardiner, R.N.; certificates, Mr. Hammond Spencer and Miss Bowen.

Class II. (Instantaneous).—Bronze medal, Mr. Andrews.

Class III. (Groups, etc.).—Silver medal, Miss Bowen; bronze medal, Mr. Hammond Spencer; certificates, Mrs. Haddon Smith and Miss Paint.

Class IV. (Enlargements).—Silver medal, Major Stuart; bronze medal, Miss Bowen; certificates, Mr. Hammond Spencer and Major Stuart.

Class V. (Slides).—Silver medal, Mr. Binet; certificate, Miss Le Cornu.

Class 1 is naturally not only the largest but perhaps the most attractive in character. Mr. Hammond Spencer's views of Wales are an exhibition in themselves. Mrs. G. B. Haddon Smith has some views of Jersey, and there are several others which command attention. Mr. Perree shows a good picture of Windsor Oak Forest. Captain Gardiner wins the bronze medal for a group of semi-savages standing outside their dwelling. Interesting, too, are photos of a cave and raised sea beach at Greve au-Lançon. Miss Bowen was deservedly awarded hon. mention for well-chosen views of Rozel, Bellozanne, etc. Mr. J. Andrews has some interesting experiments in printing, and Mr. J. Swayne shows good work.

Among the instantaneous pictures we must specially notice the work of Mr. Andrews, who wins the bronze medal for studies of sea and sky and also shows good snap-shots of Sark, the Houses of Parliament, etc. Striking Guernsey views appear in this section—also good ships by Mr. Coutanche, and locks, etc., by Mr. W. F. Perree.

In class 3 some excellent work is on display. Miss Bowen takes the silver medal for a pretty boating scene, and Mr. Spencer the bronze for two fishermen; he has also good interiors. Miss Bowen shows effective pictures of Canadian winter scenery. Miss Edith Paint's (Guernsey) exhibit of well posed farmhouse and other subjects merit high praise.

In enlargements Major Stuart has sent in several very effective pictures of Indian temples, etc., and his exhibits are very interesting. Miss Bowen secures the bronze medal for a street scene. Mr. Hammond Spencer is honourably mentioned for "High and Dry in the French Harbour."

In slides Mr. Binet has some admirable subjects of British and foreign scenery, while Miss Le Cornu's exhibits include Jersey views. Some interesting Indian views also appear on the table devoted to this section, as well as two photographs of snow-clad mountains, taken by moonlight and not for competition.

Messrs. J. T. Baker and F. G. de Faye have stands of photographic necessaries.

THE SANDELL EXHIBITION.

As stated in the introductory notes to the catalogue, the prints shown at this exhibition are of test subjects and not pictures, yet many of them are pictures. All sorts of vagaries have been played in exposing the plates, in order, as far as possible, to simulate the conditions which would occur in a tyro's practice. We cannot do better than quote as to the development of the plates from the catalogue:

"The plates were, with the exception of five, all developed on the return from the journey; the developer used consisted of a mixture of hydrokinone with eikonogen and rodinal, the formula for which is appended. The method pursued was as follows:—The lights were first developed until almost dense enough, by means of a dilute restrained developer, which is called Solution 1, and then the shadow details were brought up by the application of the normal developer, or Solution 2. Over-development of the lights has to be guarded against. This causes obliteration of fine details in the windows of interiors, or of clouds in landscapes, where good exposure has been given.

Formula for Stock Solution.

Hydrokinone	30 gr.
Eikonogen...	100 ,,
Rodinal	9 dram.
Sulphite soda	2½ oz.
Carbonate potash...	2½ ,,
Water, make up to	1 pint.

Solution 1.

Stock solution	½ oz.
10 per cent. solution bromide potass... ...	80 minims.
Water, to	4 oz.

Solution 2.

Stock solution	1 oz.
Water, to	4 ,,

"The strength of Solution 1 should be reduced to half of above when temperature is higher than 60 deg. Fahr.

"N.B.—Any of the ordinary developing formula may be used, with this exception, *pyro with ammonia as accelerator*, and even this is admissible where the upper film has received a fair amount of exposure in all parts, the reason for the making of this exception is the following:—

"The multiple films have demonstrated beyond doubt the rationale of green or dichroic fog. It is this: ammonia causes the reduction of the finest particles of the silver haloids contained in the fine emulsions forming the lower strata to the metallic state, and at once dissolves them, forming the powerful dye whose effects are so well known; this action, however, is perfectly controlled by the liberation of the halogens in the upper film during the exposure. But as in many interiors and instantaneous photographs, large masses of black shadow often obtain, where light action is almost nil and consequently green fog at its maximum, it has been thought advisable to guard against the prejudice which this phenomenon so frequently engenders, and so to dissuade from the use of ammonia, although experience has taught the real utility of the fog.

"The discovery above mentioned came about as follows:—Some plates were being tried for snap-shots in December, on snow-covered landscape. The plates used were double filmed, having the two least sensitive films of the Sandell Especial Plate, *i.e.*, of five and nineteen Warnerke respectively; they were strongly developed with pyro and ammonia—the result was a fair amount of negative in the upper film, and on stripping this off, a perfectly graduated positive in green fog in the lower and least sensitive film, which correctly graded the shadows and permitted a much truer print; the other alkalies have a similar reducing action, but without the same power of solution."

Turning to the exhibits, they may roughly be classed into three orders—interiors, ordinary outdoor work, and difficult outdoor work. Of the interiors we cannot say more than that they are perfect. In some, we have actually the streaming-in sunshine correctly reproduced, and this without any halation. In No. 24, "The Pontifical Throne, St. Peter's," we have white glass windows accurately reproduced without any halation, with an exposure of fifteen minutes, *f*/27, bright sunshine; and again, in No. 36, "A Royal Vinery, Frogmore," taken at 12.35 p.m., bright sunshine, exposure half an hour, stop *f*/64, there is absolutely no sign of halation. One very noticeable print is No. 25, "Monument of Pope Alexander," a hideous thing from an artistic point of view, but the rendering of the white marble and the delicate figuring in the red and green marbles of which the whole is composed is very striking. As examples of outdoor work, and the most difficult outdoor work too, we may point to 3, 4, 5, 6, and 7. Here we have dark-green pines, brilliant sunlit snow against a blue sky, and yet the gradation is perfect. The application of the plates to ordinary work is shown by numerous examples from Welsh scenery by Green Bros. of Grasmere. Snap-shots, and good ones too, are shown by C. F Oakley; and to tyros, No. 136 will be interesting as being the actual results obtained by a gentleman who had never before used a camera. The exhibition is well worth seeing, and as the proceeds are to be given to the Benevolent Association, we trust our readers will support it. We still have some tickets to dispose of.

THE BOLTON PHOTOGRAPHIC SOCIETY.

On 12th inst. an exhibition was opened in the Public Sale Rooms, Bowker's Row. At the outset the society may be complimented upon the good taste which entered into the decorative arrangements. The Committee by way of stimulus offered a number of silver and bronze medals for competition in seven classes, both to members and non-members of the society. It was stipulated that at least six photographs should be exhibited by each competitor, and hence a fair insight was afforded into the capabilities of each competitor. Mr. J. R. Bridson, J.P., the President of the society, had for exhibition over a dozen fine pictures, including portraits of Princess May, Miss Bridson, Miss Fortescue, and various landscapes. some of which were worked up in colour and crayon. In portraiture there was a very fair representation of professional artists in the town, some highly finished work being exhibited by Mr. Nathan S. Kay, Mr. F. Proctor, and Messrs. Weatherley Bros., whilst Mr. H. Birtwistle was also an exhibitor in this class. Mr. J. S. Roscoe, a skilled amateur, had several landscapes on view, and also worthy of special mention in the miscellaneous exhibits were Messrs. W. Staton, W. Collier, W. L. Entwistle, H. Haywood, J. Kellett, W. Green, A. Harper. Other exhibitors who figured very creditably were Dr. Johnston, and Messrs. E. J. Roscow, F. Roscow, J. Thornley, Jabez Boothroyd, R. Fielding, jun., R. Paiton, S. L. Coulthurst, A. Graham, J. Leach, Jas. Morris, J. H. Galloway, R. Leigh, R. Gregson (Blackburn), J. H. Cowan, J. Lomax, I. Brooks, and J. Young. Several manufacturers of photographic materials had on view specimens of their atest processes, and local dealers in photographic outfits, including Mr. W. Banks, Corporation Street, and Mr. T. H. Heyes, Deansgate, had very interesting exhibits of their specialities on view. The Eastman Company had on exhibition eight views as specimens of their bromide and solio processes; but the exbibit which was the commanding attraction in the room was Messrs. Elliott and Son's green carbon enlargement, "Break, break, break, at the foot of thy crags, O sea!" which is 7ft. by 5ft. in size. There was a very large attendance at the opening ceremony, including Mr. J. R. Bridson, Drs. Johnston, McKechnie, and Barr, Mr. J. P. Haslam, J.P., C.C., Councillor J. T. Cooper, and Messrs. J. Fearnley, C. K. Dalton, Hon. Secretary, E. N. Ashworth, J. Boothroyd, and J. E. Austwick (Secretary to the Exhibition Committee). The results of the judging were as follows:—Members of the society only: Class 1, best set of six photographs from negatives taken since March, 1889—1, silver medal, Walter Staton; 2, bronze medal, H. Heywood; 3, bronze medal, A. Harper; and highly commended, Dr. Johnston. Class 2: Best set of at least six photographs taken at Society's out-door meetings during 1892—1, silver medal, W. Collier; 2, bronze medal, W. L. Entwistle. Class 3: Best set of transparencies from negatives taken during 1822—1, silver medal, W. L. Entwistle; 2, James Kellett; 3, Ernest J. Roscow. Class 4 (open to all professional photographers): Best set of six portraits—1, silver medal, N. S. Kay; 2, bronze medal, F. Proctor. Classes 5 and 6, no competition. Class 7: Best picture in the exhibition, belonging to any member of the Society—1, silver medal, J. S. Roscow; 2, bronze medal, W. Green. As supplementary attractions to the exhibition the Committee arranged a series of musical entertainments. The judges were Messrs. J. H. Welch, E. L. Marriott, and H. Hall, of the Liverpool Amateur Photographic Association.

The exhibition closed on Saturday. The room was crowded, the chief attraction being a lantern display, the "Peaks and Dales of Derbyshire," which was highly appreciated. During the four days the exhibition has been open upwards of 1,200 people have visited it, and it has been a thorough success in every way.

Societies' Notes.

A PHOTOGRAPHIC club has been formed in connection with the Y.M.C.A. at Southampton. A dark-room has been fitted up. Mr. A. Westlake is President, and Messrs. A. T. Doggrell and C. H. Witt are the Hon. Secs. It is intended to hold an exhibition in May in connection with the Art Society, and an excursion will be made in conjunction with the Shaftesbury Rambling Club.

* * *

THE BRADFORD AM. PHOT. SOC. will hold their annual exhibition at the British Art Gallery on May 1st. The following are the conditions and prizes:—Photographs must be delivered on April 29th, between the hours of ten and six, at the British Art Gallery, Bridge Street, addressed to the care of the Secretary for Photographic Exhibition. The form of entry to be returned on or before April 28th, to the Secretary, 15, Beech Grove, Pollard Lane, together with a postal order for entrance fees, payable to F. B. Pickles. The entrance fee is 2s. 6d. for each class. All photographs are to be framed. Oxford and oval frames are not allowed. Prize list:—Class 1, landscape or seascape, irrespective of size; 2, instantaneous, or hand-camera work, irrespective of size; 3, architectural subject (interior or exterior), irrespective of size; 4, genre picture, subject optional, irrespective of size; 5, enlargement, a print from the original negative must be submitted with the enlargement; 6, series of six lantern slides. In each class, first prize, silver medal; second prize, certificate. The photographs must be the genuine work of the exhibitor—exposure, development, printing, and toning—from negatives not previously exhibited. The photograph may be mounted on cards, any colour, and either enamelled, burnished, or in optical contact with glass. In case of doubt, negatives may be called for by the judges. Each exhibitor must send in three or four pictures for competition in each class, excepting classes four and five, where one will suffice. The prizes will be awarded for the best three in each class (except the aforesaid classes four and five). The second prize will be withheld, unless there be at least three competitors. The lantern slides to be taken from exhibitor's own negatives, and prepared by the exhibitor himself. No members shall be allowed to compete unless they have paid up their subscriptions and arrears. Subscriptions for the present season were due on the 1st of October last, and are requested to be paid at any of the society's meetings. The judges shall have power to make extra awards, or withhold awards in cases of insufficient merit.

* * *

Cheetham Phot. Soc.—April 11th. Lecture by Mr. W. T. Wilkinson, on "Development," in which he explained the effects of the different developers. The rules of the society were also confirmed.

Societies' Meetings.

Ashton-under-Lyne.—On 13th inst. an exhibition of lantern slides made by some of the members was held. There was a good attendance, and a large number of slides were thrown on the screen by the Hon. Secretary, Mr. Robt. T. Marsland.

Birkenhead.—The monthly meeting was held on 13th inst., Dr. W. H. Hunt in the chair. Messrs. Paul Lange and H. Lupton gave a thorough exposition of the cold-bath platinotype process. Mr. Lange took the lead by developing a dozen prints with oxalate of potash, and showed conclusively that an over-exposed print may be saved in this process where there would be no hope for it if developed in the hot bath. Mr. Lupton worked the developing salts sold by the Company, and the playful rivalry thus introduced gave an additional zest to a very pleasant evening.

Birmingham.—A meeting was held on 12th inst., Mr. W. D. H. Foster, Vice-President, in the chair. After discussing several questions from question box, Mr. S. Delicate gave a most interesting paper on "Out-door Photography." It contained most useful information to the professional as well as the amateur photographer, and was much appreciated by all the members present. Next meeting, May 10th, there will be a demonstration on "Hand-Cameras."

Croydon (Micro.)—On the 14th inst., lantern evening, lecture on "Winchelsea and Rye," by Mr. A. Brooker. In tracing the history of these picturesque and old-fashioned towns the lecturer showed, by means of ancient maps, the vast changes that, owing to the vagaries of the sea, had taken place round the mouth of the Rother, whereby these ports had been left stranded high and dry, surrounded by marshes. The lecture was copiously illustrated by views of the numerous archæological remains, and of marshland and shipping scenes, some of these latter being particularly fine.

Darlington.—On 10th inst. the Secretary read a paper by Mr. W. Jerome Harrison, entitled "A Proposal for a National Photographic Survey and Record." Examples of work already done by the Birmingham Photographic Society were exhibited and greatly admired. The meeting concluded with an interesting discussion on the modes of working and merits of different plates, developers, and printing papers, from which the less experienced members were enabled to derive some useful facts and information.

Durham.—An invitation exhibition was given on 5th inst., there being a very large assembly of the elite of the city, the President (Rev. H. E. Fox, M.A.) in the chair, who introduced Mr. E. G. Lee and Mr. Parker Brewis, of the Newcastle and Northern Counties Photographic Association, who projected on the screen by means of the oxy-hydrogen light and a very powerful lantern, over 200 choice photographic slides by many of the best English makers. The frequent bursts of applause which greeted many of the slides proved they were thoroughly appreciated. At the conclusion the President presented the awards gained at the late exhibition.

East Grinstead.—The first meeting was held on 11th inst. There was a good attendance. The following Council of Management was elected for the year:—President, Dr. C. E. Collins, East Grinstead; Vice-President, Dr. E. M. Cruikshank, Saint Hill, East Grinstead; Hon. Treasurer, Mr. A. Bridgeland; Hon. Secretary, Mr. E. McKenzie, 30, High Street, East Grinstead; and Messrs. Grayling, Hills, Muller, York, and Jenks as members of the Council. A short address was given by the President, which was followed by an interesting discussion on the various difficulties in amateur photography.

East London.—Ordinary meeting, Mr. Wilkinson, Vice-President, in the chair. An amusing question from the question box was read, relative to ghost photography: What are the best plates to use, and what would be the correct exposure for ghost photography under ordinary conditions? Most of the members thought that a photograph of a ghost would not be taken under *ordinary* conditions. The chairman said that he thought the question should read as to making ghost effects; in that case he should advise that the operator use those plates with which he was most familiar, give about the usual exposure for a portrait, and then expose the same plate again for about one-sixth of the original exposure. Prints were handed round by Messrs. Pasco and Gould, the former promising a practical demonstration on development with pyro and soda at an early date.

Fairfield.—The monthly meeting was held on 11th. The subject for the evening was a practical demonstration and lecture by the President, Mr. Mallabar, on "Development and the Pyro Developers." In dealing with this subject Mr. Mallabar not only called attention to the practical side by developing several plates, but also explained the theoretical action of the various chemicals on the sensitive film. Some samples of the Imperial plates, sent by the kindness of the Imperial Company, were distributed at this meeting.

Hackney.—Mr. E. Puttock in the chair. The Hon. Sec. (Mr. W. Fenton-Jones) was welcomed back by the members after his tour through Italy and Switzerland, and he informed them he would give an account of his trip later on in the year, with slides from negatives taken by him. From the question box: What is the cause of a negative turning pink? A suggestion was that the hypo had not been eliminated sufficiently. Mr. Beckett showed a table showing loss of reflection from polished glass plate (sent him by Mr. Wall). Messrs. Sodeau and Smith showed comparative tests on unbacked, backed, and Sandell plates. In the backed and Sandell plates there was hardly any halation, but the unbacked one had much halation. Other work was shown by Messrs. Salmon, Roofe, Richardson, and Hudson, after which lantern slides, the work of Messrs. Roofe, Roder, Carpenter, Wire, Barker, Barton, Dean, Salmon, Cross, Olney, Harvey, Hudson, and Beckett were shown.

Holborn.—On 14th inst. the annual distribution of prizes took place, the President in the chair. A. J. Golding took a silver medal (President's prize) for the best interpretation of "Twilight;" J. H. Avery bronze medal, second in Class I.; A. J. Golding, bronze medal, first in Class II.; J. F. Stevens bronze medal, third in Class IV. Songs and pianoforte solos finished up a thorough social event. Bernard Alfieri and John A. Hodges were elected hon. members.

Hull.—The annual meeting was held on 13th inst., Mr. C. D. Holmes, the President, in the chair. The report and balance-sheet showed the Society to be in a flourishing condition. The work of the past session had been above the average, and the lantern-slide set excellent in quality. Votes of thanks were accorded to the officers and council as well as the photographic Press. Mr. C. D. Holmes was re-elected President, Mr. John Pybus, Vice-President; whilst Mr. A. N. Jameson was selected as Treasurer, in the place of Mr. D. W. Sissons, who retired. Messrs. A. H. White and E. E. Cohen were re-elected Hon. Secretaries; Mr. Jas. Walker, Hon. Lanternist; and Mr. B. M. Stoakes, Hon. Librarian. The following were elected the Council: Messrs. T. H. Allcott, G. J. Boville, Rev. W. Hay Fea, Rev. Geo. Coleman, C. F. Amos, E. H. Howlett, J. E. Sharpe, Dr. Hollingworth, Dr. Lidiard, D. W. Sisson, T. Rose, W. V. Lyth. Arrangements were made for the summer session.

Kendal.—On the 12th inst. Mr. Ritson gave a lecture on the Channel Islands. Mr. F. Wilson presided. The lecturer gave a history in outline of the Channel Islands, from the landing of the Romans down to recent times. Many feudal customs are still maintained in the Islands, with modifications. The first scene shown was the harbour of St. Heliers, the chief town of Jersey. In the Market Place of St. Heliers is a statue of George II., which, during election times, is tarred and feathered, and used as a hoarding by billposters. Several views were shown of Jersey cows. Mr. Ritson then showed views of Guernsey, which is one and a half hours from Jersey by sea. There is a large granite quarry in Guernsey, whence, during last year, no fewer than 200,000 tons of granite were quarried. The lecturer was of opinion if the process went on much longer the whole of the island would be quarried away. The principal manure of the fields in Guernsey is sea-weed, which is collected in carts drawn by heifers. The prettiest island, Sark, is seven miles distance from Guernsey, and from the harbour, where a landing is effected, a passage is cut through the rocks inland, on account of their precipitous nature. Mr. Ritson then showed several slides of the beautiful scenery on the island of Sark. Alderney was also described.

Kensington and Bayswater.—A meeting was held on the 17th inst., Mr. C. W. Brumwell presiding. The Hon. L. M. St. Clair gave a lantern lecture on Norway and Sweden, and also showed slides from negatives taken in Nepaul, Thibet, and India. The lecturer also exhibited some native weapons, etc., and described the manners and customs of the people in each of the countries.

Leicester.—A meeting was held on the 8th inst., Mr. J. Porritt, President, in the chair. The minutes of last meeting were read, and three members were balloted for and elected, and four proposed for ballot at next meeting. The President placed before the meeting the particulars and results of the society's late exhibition, which was a pronounced success, and on the motion of the Hon. Sec., seconded by Mr. Geo. Bankart, a vote of thanks was heartily accorded to Miss H. M. Porritt for her valuable services as Exhibition Secretary. The Plymouth Convention slides were then passed through the lantern.

Liverpool (A.P.A.).—A reception and afternoon tea was given to a few of the ladies of the Association on 13th inst. A large number of the members and their friends attended; the arrangements were in the able hands of Mrs. Marriott, Miss Adams, Mrs. Morrison, and Mrs. Southell. The club-rooms had quite a holiday appearance with the decorations, flowers, and other comforts known to the fair sex. In the evening a practical demonstration on Alpha and bromide paper was given by Mr. Wilkinson, of Manchester. He also exhibited and gave a formula for a home-sensitised print-out paper.

Newcastle.—The monthly meeting was held on 11th inst., Mr. H. G. Ridgway, Vice-President, in the chair. The outdoor meetings were fixed as follows:—May, Stawart-le-Pele; June, Fountains Abbey; July, Richmond; August, Alnwick; September, Seaton Sluice and Seaton Delaval. Mr. Wm. Parry read a paper on "Retouching," and discussion followed. The formation of a photographic library is under way and progress was reported.

North Middlesex.—Meeting on 10th inst., Mr. J. Humphries, F.S.A., the former President, attended and showed samples of a new lantern plate which had been patented. The great advantages claimed were that it was unbreakable and non-burnable, thus being able to stand the fiercest heat produced in any lantern. The support was prepared mica. Great trouble had been taken to find a way of treating the mica to give it such a surface as would take and retain colour, but this he claimed had at last been accomplished. The specimens he produced were all by a mechanical process, but he expected that they would shortly be on the market coated with emulsion for ordinary photographic use. The mica was beautifully clear and translucent, of a fine white colour, and absolutely free from spots and blemishes. Mr. Cox opened a discussion on development. He restricted his remarks to the pyro developer, as he found he could get results with that agent that were not surpassed by any of its more modern rivals. He recommended sulphite of soda as the preservative, with citric acid to render it neutral, using 4 oz. of sulphite and 80 gr. of citric acid to the ounce of pyro. He produced some of his stock solution which had been kept eighteen months, and it had only changed to a straw colour. He dealt fully with the development of over and under exposed plates, and for the latter recommended a preliminary bath of either hypo (1 or 2 parts to 1,000 of water) or a weak solution of ammonia, followed by a developer weak in pyro, strong in ammonia, and strong enough in bromide to prevent fog being caused by the ammonia, and followed, should the negative be wanting in density, by a fresh solution strong in pyro and weak in ammonia and bromide. To get the fullest gradations of nature, a thickly-coated plate was necessary, as, although printing density could be obtained on a "starved" plate, the range of tone would be limited. He always used cathedral-green glass, and one thickness of canary fabric, as being better to work by than a ruby light, and by exercising care in keeping the plate from the direct light rays, no fog caused by light would be found to take place. A most interesting discussion ensued, in which Messrs. Beadle, Mattocks, Gregory, McIntosh, Wall, Smith, Marchant, etc., took part. Mr. McIntosh mentioned that metabisulphite if used as a preservative became more acid by keeping, and required the addition of more ammonia, often leading beginners to think their plates under-exposed. The award for the best print from plates exposed at the outing at Penshurst was gained by Mr. H. Smith. Next meeting on 24th, when the subject of "Retouching" will be treated by Mr. J. Matthews, who will illustrate his paper with lantern slides.

North Middlesex.—The fourth of the series of elementary technical classes was held on 12th inst., when Mr. J. C. S. Mummery dispensed practical instruction in "Toning Gelatino Chloride Paper, with both the combined and separate baths." The next evening has been fixed for May 10th; the subject will be "The Improvement of Negatives" (intensification and reduction), by Mr. J. M'Intosh. Any gentleman wishing to attend is earnestly requested to make application to the Hon. Secretary (Mr. G. Gosling), 13, Lausanne Road, Hornsey.

Rotherham.—Monthly meeting on 11th inst., Dr. Baldwin (President) in the chair. Good attendance. Three new members elected. Mr. Leadbeater (Treasurer), in a paper on "Hand-cameras," considered such apparatus as the premier plate spoiler, and said he should like information as to proportion of really good negatives out of total plates exposed. When understood, the hand-camera was a most interesting and enjoyable companion, and had been one of the best advertisers of modern photography. Hints on construction and use of hand-cameras, and also on plate and film development were given.

Stockton.—The ordinary monthly meeting was held on the 11th inst., Mr. J. H. Draper, the President, in the chair. Dr. Stainthorpe gave an exceedingly instructive paper on the "Practice of Photography;" it was afterwards decided to have the paper printed.

West London.—On the 11th inst., Mr. W. S. Rogers, the Hon. Sec., gave a practical demonstration in "Frame-making." He explained the method of cutting the mitre joints, and showed how the four sections of moulding could be readily glued up to form a picture-frame. Mr. Rogers employed for the purpose of his demonstration a bench by Messrs. Syer and Co., and he exhibited and explained a very ingenious mitre-cutting machine by Messrs. Booth Bros., both of which had been lent for the occasion. Afterwards a series of slides by Mr. H. Selby, illustrating a tour in the counties of Durham and Yorkshire, were put through the lantern, and Mr. Selby gave an interesting lecture on the places represented.

Mr S. Rogers, manager of the Grand Hotel, Jersey, informs us that a dark-room has been fitted up for the use of visitors, and he encloses also a tariff, which is reasonable, and the hotel is facing the sea and very favourably reported on by one of our readers.

SOCIETIES' FIXTURES.

April 20—Aston.—"Failures."
,, 20—Harringay.—Sale and Exchange Apparatus.
,, 20—Liverpool.—Lecture by Mr. W. T. Wilkinson, "Printing on Carbon and Platinum. Enlarging Direct and from Transparency."
,, 20—Liverpool (Camera Club).—Outing to Bebington and Storeton. Leader, Mr. J. Hawkins.
,, 20—London and Provincial.—Adjournment Discussion, "Determination of the Speed of Plates."
,, 22—Croydon.—Excursion to Leatherhead for Mickleham and Boxhill. Conductor, Mr. Low Sarjeant.
,, 22—Leytonstone (Camera Club).—Excursion to Barking. Leader, Mr. A. P. Wire.
,, 22—Bristol (Camera Soc.).—Excursion to Weston-Super-Mare.
,, 22.—Cheetham.—Ramble Through Drinkwater Park.
,, 24—Richmond.—"Retouching," Mr. E. Morgan.
,, 24—Gloucestershire—Annual General Meeting.
,, 24—N. Middlesex.—"Retouching," Illustrated with Lantern Slides, by J. W. J. Matthews.
April 24—Woolwich Poly.—National Competition Slides.
,, 25—W. London.—The Amateur Photographer Prize Slides.
,, 25—Halifax.—Paper on "Lenses," J. W. Stewart.
,, 25—Rochester—National Prize Slides, *Hand-Camera and Lantern Review*.
,, 25—Hackney.—"The After-work of Hand-Cameras," by A. R. Dresser.
,, 26—The Photo Club.—"Novelties in Hand-Cameras."
,, 26—Liverpool (Camera Club).—The Prize Slides of "Photography" Lantern Slide Competition will be passed through the Lantern. Lanternist, Mr. T. Edwards. Members are invited to bring lady friends.
,, 26—City of London College.—"Some Methods of Micro-Photography, together with Demonstration with the Electric Light," by Mr. W. C. Cooke, A.I.E.E.
,, 27—Oldham.—Lecture on "Our Summer Rambles, 1892," Mr. I. Chadwick.
,, 27—Leigh.—Arranging the Summer Excursions.
,, 27—Liverpool.—Monthly Meeting. Lantern Lecture by Mr. E. M. Tunstall, "Picturesque Holland."
,, 27—Dublin Y.M.C.A.—"Printing Methods," by Mr. L. David-

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.

2. Write each Query or Answer on a separate sheet of paper.

3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.

4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.

5. The Editor does not undertake to answer Questions by post.

QUERIES.

6035. **Blind Shutter.**—How can I put in a new blind to Thornton-Pickard shutter?—G. H.

6036. **Lincoln.**—If any of your readers have visited Lincoln I shall be glad of hints as to best views, and most important studies in and around that town.—E. W. Snowball.

6037. **Flashlight.**—Which lamp is considered the best for flashlight exposures?—Quis.

6038. **Enamelling.**—Wanted, particulars of how to enamel albumenised prints.—W. C.

6039. **Focussing Screens.**—I should be very thankful for particulars of the way to make focussing screens.—Scotland.

6040. **Monmouth.**—Any hints as to the views to be had at Monmouth will be received with thanks by—T. C. H. W

6041. **Negative Wanted.**—Will any amateur kindly inform me where I could obtain a print, or loan of negative to print from, of the Wolverhampton Wanderers' Football Club? Group or any other position will suit.—Evertonian.

6042. **Lens Testing.**—Can anyone tell me a simple means of testing a lens other than by taking a picture? I am totally ignorant, when having one in my hand, what to do to ascertain whether it is commonest, passable, or good?—W. S.

6043. **Aberystwyth, N. Wales.**—Perhaps some of your readers would be good enough to furnish an account of Aberystwyth, N. Wales, as a centre for photographic work. Any suggestions or hints in reference to its immediate neighbourhood would be gratefully received.—Prospector.

6044. **Enamelling.**—On taking off prints (P.O.P.) from enamelling iron plate, prints show scratches, etc. What should I do to get off clear prints? If enamelling iron wants cleaning, kindly tell me best way of cleaning.—J. T. H.

6045. **Mounting**—Can any one tell me what is the best thing to smooth dowd photographs when mounting them? Having tried with a pad of blotting paper I find that the blotting paper sticks to the photograph, which is very hard to get off.—R. N.

6046. **Spots.**—Can any reader tell me what is the cause, and what I can remedy it with, if anything, of numerous small brown spots appearing nearly all over a negative, as I have a negative covered with them which I was anxious to preserve?—Secretary.

6047. **Ramsey.**—Can any brother amateur inform me whether Ilford plates are obtainable in Ramsey, and whether I could have the use of a dark-room there for developing?—J. Thompson.

6048. **Snap-shot Developer.**—Will some one please give me, from personal experience the best snap-shot developer (Ilford plates)? Hydrokinone gives pretty negatives but wanting in density. Amidol, also in my hands, lacks sufficient density. Pyro-soda has been most satisfactory, but I imagine more detail might be brought out. Would not a mixture of pyro-soda and amidol give both density and detail? If so, I should feel obliged for a good working formula.—Z.

6049. **Paper Negatives.**—Would some one please inform me how these are made? Is it possible to print from a transparency on Ilford P.O.P., thus getting a negative, and then putting something on it to render it fit to print a positive from? What is the something?—S. J.

8049. **Electric Lamp.**—I have an electric lamp which I wish to fit up in my dark-room in place of an oil lamp. I cannot get the electric lamp to work. Would you kindly tell me where I am wrong? I charge the battery with 3 oz. of bichromate of potash to one pint of water, adding slowly from 1 to 2 oz. of sulphuric acid.—Rolyat.

ANSWERS.

6025. **Copying Albumen Prints.**—In reply to this query, it appears, by what the querist states, that it is possible to do the work of copying by artificial light. But I am of opinion from a long experience that it is not possible to do such work with success, and I doubt whether the querist has prints of the engravings which he has taken, equal to prints from negatives, which can be best obtained by artificial light, but if he should have managed to satisfy himself with the engravings I fail to see why he should not do likewise with any kind of prints, provided they are not under glass. But again I say that copying anything by daylight is enough trouble. How much more is it to copy by gas or any artificial light! I have shown the querist that it is most advisable to copy in daylight, when he will have little trouble in getting satisfactory results, compared with the trouble which it takes to do so by artificial light, and trust he will succeed in future.—Montrose.

6026. **Eikonogen Cartridges.**—The cause of the trouble stated in this query is either over-exposure or developer too strong. Try a much weaker developer and shorter exposure.—Montrose.

6026. **Eikonogen Cartridges.** — Perhaps "G. S. H.'s" difficulty arises from the fact that the developer is too strong, or the film is over-exposed, when the operation of developing should be conducted tentatively.—D. H. W. Preedy.

6028. **Cleaning Dishes.**—If "Ticular's" stains are not very old, hot water would fetch them off perhaps. If not, try Brookes's Monkey soap, which is invaluable. It is very easy to keep a cake handy, and rub the dishes with a bit of sponge which has been drawn over the soap.—D. H. W. Preedy.

6031. **Safe Light.**—Your querist does not mention for what plates he wants the light. The ruby light is the safest, and will do for most plates manufactured, although the yellow light does very well sometimes. I have also tried paper with success.—D. H. W. Preedy.

3031. **Safe Light.**—It depends on what kind of work you do. If you use an ordinary plate, yellow light is safe enough, but for isochromatic or very sensitive plates you must use ruby light. You can buy ruby or yellow fabric, which is fairly safe, though it is best to use two or three thicknesses.—Nomen.

6033. **Paper Weights.**—These articles can be supplied by any glass dealer, but if A. B. calls at G. Houghton and Son's, of High Holborn, he will, in all probability, obtain all he requires.—Montrose.

6034. **Writing Titles.**—A white title can be printed on views by writing with liquid Indian ink on tracing paper. Let the label remain until thoroughly dry, cut away excess of paper, or as close as you can trim it to the writing, place the ink side next to the varnish and hold in position while you touch a drop of varnish to the edge, when the varnish will at once run under the label, rendering the tracing paper transparent; and if you have made a neat label, you will find a clear, distinct, and perfect label printed in white on your views without a trace of varnish or paper showing. Should you want a printed job, take tracing paper, which must be light weight, as too thick paper in printing or writing will curl and cockle all out of shape. Take plain-face type, use blue-black ink, size, and dust with carmine bronze.—D. H. W. Preedy.

QUERIES UNANSWERED.

March 17.—Nos. 5979, 5980, 5987.
,, 24.—Nos. 5994, 5995, 5996, 5998, 5999.
,, 31.—Nos. 6003, 6004, 6005 6007.
April 7.—Nos. 6018, 6019, 6020, 6021, 6022, 6023.
,, 14.—Nos. 6027, 6029, 6030, 6032.

EDITORIAL

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week This we much regret.*—Ed. Am. Phot.

Hy. Dalling.—It is an extremely difficult thing to remove the silver stains. Try a solution of bichromate of potash 5 grs., salt 20 grs., water 1 oz. Allow the plate to soak in this and then wash and treat with sulphocyanide of ammonium 20 grs., water 1 oz.

A. H. Garner.—By making a transparency by contact on a chloride or slow lantern plate, and using a ferrous oxalate developer, it would be possible to get a fairly decent result, and from this you could in the same way make a decent negative, which would be amenable to any treatment.

W. E. Payne.—The details of the process are far too long to be admitted in our columns. You had better expend threepence and obtain from Mawson and Swan, 33, Soho Square, their little pamphlet on the subject.

Miss L. Ridley.—Any large dealers such as Fallowfield, Adams, Mawson and Swan, etc., will supply you with chloride of gold of good quality. It is advisable to have some particular brand such as Johnson's or Johnson and Matthey's and then you are sure of getting it pure. The plates named are good and suitable for the purpose you name, and are as rapid as any in the market. The makers will send you on price list.

G. H. Evans.—You can reduce the bromide to one-half if you like, or replace the soda carbonate with potash. We do not think the absence of the hood would have much effect on the negatives. Considering what a little work you have done, you must not be discouraged; there is good promise, and we shall be pleased to help you at any time.

J. L. Thompson.—(1) A little longer development would have improved it. (2) Good. (3) Over-exposed; a more restrained developer would have been an advantage. (4) Over-exposed and a strong in pyro and well restrained developer was required to relieve the flatness (5) Slightly under-exposed, would stand intensifying. (6) Far too harsh; the best thing you can do with this is to convert the image into bromide of silver and redevelop till the shadows are developed right through, and then fix; you will thus get softer results. (7) A stronger developer would, we think, have given you softer results, though for some papers the negative is just right. All your films are far better exposed and developed than the plates.

Copyright.—Stationers' Hall, Warwick Lane, Ludgate Hill, E.C.

Geo. Bevan.—Always pleased to help you. (1) Caramel, known as liq. sacchar. ust., 1 oz. burnt sienna in paste 1 oz., gum arabic in powder 1 oz., mix and apply with a brush or roller squeegee. (2) Your method of procedure is right, the waterproof paper is usually starched all over. (3) Under-exposure and too much pyro and bromide in the developer. (4) There is a movement in sitter, and a far more pleasing result could have been obtained with a three-quarter view of face. It is printed quite deep enough. The great fault is the set, stolid expression.

A. Tatam.—Rosy and greenish tones are obtained when the gold bath is too weak and too old a bath. If you will make your bath up fresh and then neutralise it with a little soda you will get over the difficulty.

Novice.—(1) See answer to Geo. Bevan above. (2) Yes. (3) We think so. (4) By all means get it; we have found it of real benefit. (5) Yes, always pleased to help you, but we should like to know your name and address.

J. W.—There is a duty on plates, and these can be obtained, in both English and French sizes, at Nadar, 53, Rue des Maturins. Also at Lumiere et Fils, Rue de Rome; at the Eastman Co., 4, Place Vendome; and at Le Comptoir General de Photographie, 57, Rue St. Roch. The Hotel Terminus (opposite the Newhaven-Dieppe terminus) is a good one. A decent room and meals can be had here for 10s. or 12s. a day. There are also several good boarding houses to be found. For English company, and a fair board, go to the Hotel St. Petersbourg, Rue de la Canmartin. For déjeuner, the Café Duran in the Rue Royale is the best, but rather dear. There are several good cafes near the Palais Royal where a good dejeuner can be had for 2 fr. 50 c. prix fixe. Photographs can be taken in the Paris streets without trouble; also the interiors of the majority of interesting places, if permission is obtained on entering, but care must be taken that no forts or fortifications are included; eschew these, or you will be placed in durance vile and the camera, etc., confiscated. A passport is useful, and will sometimes get you admission to places otherwise inaccessible.

F. A. W. Whitmore.—(1) Dec. 2, '92, a note appeared in Dec. 30. and a letter in Jan. 6. (2) For instantaneous work we always use the old plain pyro and ammonia made according to Edwards's glycerine formula. (3) There is not much to choose, but try Cadett's Lightning.

Scamp.—No. 1 wants retouching, but No. 2 is good; both prints are overtoned. Either Butcher's, Marion's, Houghton's, or Percy Lund's mountant will answer for chloride prints, and it is best to cover all over with mountant.

C. Pellew.—There would be no occasion to colour the walls of cellar.

R. H. Michie.—Thanks, we will use. Pleased to help you with soc. if we can.

Cluis.—Thanks for letter, but we cannot insert.

W. E. A.—Either your lens does not cover perfectly or else the shutter or bellows cuts off the light, the latter is we think the cause. If you obtain some of Beale's non-actinine you would find no difficulty in painting out the background on the glass side. As a portrait it is decidedly good.

Blanche.—No, we give this up, the next thing that will be recommended will be all the contents of a chemist's shop mixed together, boiled and distilled. Simple formulæ are best. Pinky tones are due to weak gold bath as a rule. It is often apparent too where a very weak light action has taken place.

W. E. C. White.—Stripping the film of a Sandell plate should never be thought of unless as a scientific experiment. There should be no difficulty in reducing the film either with Howard Farmer's ferridcyanide reducer, or Belitzeki's; if you use a well-restrained weak developer there should be no occasion to reduce. The makers state there is no advantage in making an extra iso film.

Iso.—Unless you use such a very deep screen as to cut out the whole of the violet blue and green rays, you need not depart from the ordinary method of focussing. Of course if you use such a screen it would not be necessary to make the correction, but if you consider for one moment you will see that to do this will mean that you will get an absolutely false rendering of the view.

G. D. P.—(1) Slightly over-exposed, but a very decent print. (2) Ditto. (3) Good. (4) Ditto. (5) Ditto. (6) Insufficiently toned, but a good portrait.

M. A. Warden.—The details of the process are kept secret.

W. H. Ellis.—The *Photographer* can still be obtained from Geo. Mason and Co., Sauchiehall Street, Glasgow, price threepence. We referred to another.

W. G. Perks.—You would find the Cantilever the more satisfactory instrument.

C. F. Pyke.—(1) The studio would be rather narrow, especially for groups, but for single figures and two or three it would be very suitable. (2) About 12 ft. of glass in roof and side, and in the latter coming down to about 2 ft. from floor, commencing 4 ft. from end of studio, and sitter should be placed about that place, and blue and white muslin blinds can be used. (3) Yes, they are decidedly superior.

Lens.—The 6 in. Wray will cover a whole-plate, and prove satisfactory.

Plates.—We can only suggest that the dust adhered very firmly to the film; try a soft wash-leather passed over the plate before developing, and be careful no air bubbles are formed.

Enlarging.—Use the lens you took the negative with. If you let us know the focus of this we can tell you approximately the relative distances.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* **Fourpence.** *Every additional* **three words, one penny.** *The name and address of the sender* **must be paid for.** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* **one word**; *compound words count as* **two words.**)

DEPOSITS.—*Money for goods forwarded on approval may be deposited with the Publishers of the* Amateur Photographer, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge 1s.*

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* Amateur Photographer, *1, Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* Editor, Amateur Photographer, *1, Creed Lane, London, E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.,*** *or a commission of* ***2½ per cent.,*** *upon the sale price of the apparatus.*

Cameras, etc.—10 by 8 camera (Watson), parallel Russia leather bellows, weight 8¾ lbs., 14½in. extension, with strong leather travelling case and portable canvas ditto, £5 10s.; Eastman 10 by 8 rollholder to fit above, scarcely used, £3; Watson's hand-camera, 5 by 4, three double dark slides for plates or films, £6, good as new; tripod, two-fold (Watson), for 10 by 8 camera or under, 7s. 6d.; ditto, three-fold, 8s. 6d.; biunial lantern (Optimus), 4in. condensers, lenses, jets, and dissolver, in lock-up box, complete, £6.—C. Cobb, Hughenden, Surbiton.

Quarter-plate camera, tripod, double slide, good condition, 20s.—22, Park Road, Bellevue, Southampton.

Cameras, Lenses, etc.—Victoria camera, fitted with four lenses, takes 12 pictures on quarter-plate, dark slide. What offers? or exchange.—Durgin, West Street, Hertford.

Condenser.—3in. condenser, with objective, by Dollond, as new, sacrifice for 6s. Postal order to C. Gillett, The Brewery, Chorlton-in-Marsh, Gloucestershire.

Dark-Room, etc.—Portable dark-room by Houghton, length 5ft., width 2ft., height 5ft. 6in., curtains, water tank, etc., sundry bottles and dishes. What offers in cash.—Mr. F. Rawson, 13, Highland Road, Upper Norwood, S.E.

Enlarging Apparatus.—Hume's Cantilever enlarging apparatus, half-plate size. 8in. condensers, perfect condition, £5 5s.—A. James, Monsels, Barry, S. Wales.

10 by 8 enlarging camera, with mahogany slide and screen, extends 4ft. 6in., cheap, £1; Ross' portable symmetrical, 5in. focus, perfect, will cover whole-plate, £2 2s., cost £3 10s.—J. A. Hodges, 46, Fairlawn Grove, Chiswick.

Hand-cameras, etc.—Hand-camera, Swinden and Earp's quarter-plate, in good working order, with brown waterproof cover, £4.—Rev. Thomas Armstrong, St. Fillans, Crieff, N.B.

What offers cash? Shuttle hand-camera, leather covered, Wray's lens, perfect condition, cost £8 12s.; B ordinary Kodak, cost £2 2s.; Adams' adjustable shutter, pneumatic regulator, time and instantaneous, quarter-plate size, quite new, cost 25s.—C. H. Peterson, 38, Bassett Road, N. Kensington.

Shew's Eclipse hand-camera, with changing box and one double dark slide. What offers?—L. Ilsley, 12, The Avenue, Hornsey, N.

Quarter-plate reflector focussing hand-camera, with Eastman rollholder, no lens, takes from 6¾ to 7¼ focus lens, 50s.; grey cloth background, 6 by 8, 5s.; pair deep porcelain dishes, 16 by 14, 5s. Wanted, lantern with 4in. condensers which could be used for enlarging.—W. G. Perks, Clevelands, Walthamstow.

Hand-camera, Chadwick's, Wray lens, six double slides, solid leather case, perfect, £5.—Ware, St Mary's, Edmonton.

Kodak No. 2 (time and instantaneous) with leather case, excellent lens, good as new, cost £7, price £4 10s. —E., 18, Rodney Street, Liverpool.

Merlini's hand-camera, half-plate, R R lens, rising and cross front, swing back, finders, focussing screen, three double slides, tripod, time and instantaneous shutter, nearly new, £4 10s., cost double.—Smallpeice, Woodland Road, Windermere.

Hand-camera, Underwood's Sphynx, or other reputed make, lowest price, approval.—Hand, Overton Street, Liverpool.

Rover (Lancaster's) hand-camera, half-plate, new in February, pneumatic time and instantaneous See Saw shutter, rapid landscape lens, perfect. green baize outer cover, 70s.—W. A. Wood, Sea View House, St. Mellons, near Cardiff.

Diamond No. 1 (Talbot and Eamer's), R.R. lens, in case, 14s. 6d., cost 37s. 6d.—Hamerston, 2, Park Row, Greenwich.

Marion's Radial hand-camera, Soho R R. lens, a bargain, £3; deposit.—Arthur, 16, Perryn Road, Acton, W.

Adams' 1893 Ideal hand-camera, new month ago, £5 10s.—Sons, 4, Douglas Street, Derby.

Lantern.—Optimus magic lantern in case, 4in. condenser, clear definition, splendid instrument, mahogany outside body, panelled door, brass stages, and sliding tubes with fittings for limelight or oil, cost nearly £5, little used, sacrifice for £3 3s. for immediate cash.—No. 398, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Lenses, etc.—Quarter-plate lens by Watson, suitable for hand-camera, 25s.—Carter, 5, James Street, Rochdale.

9 by 7 best rapid rectilinear, Waterhouse stops, 35s.; 9 by 7 wide-angle rectilinear, 45s.; whole-plate euryscope, Waterhouse stops, working *f*/6, 80s.; very fine instruments, only used about once, property of gentleman.—Albert Durn, Wotton-under-Edge, Glos.

Large diameter portrait lens, 10 by 8, £5; Lancaster's half-plate single landscape lens, iris diaphragm and instantaneous shutter, £1; whole-plate changing bag, 10s.; all in very good condition.—Hanley, Flint House, Scunthorpe, Doncaster.

Lenses and cameras to be sold by one relinquishing photography. List from Ambrose, Beaumaris.

Print Washer.—Wood's 8½ by 6½ print washer, no rack, only used twice, cost 12s. 6d., will take 8s. 6d., no exchange.—Miss L. Ridley, Hollington, Newbury.

Sets.—Half-plate camera, folding smallest possible space and weighing 36 oz. when closed, long extension leather bellows, swing back, automatic spring to hold slide, leather handle, levelling plummet, three double backs (with automatic springs), altered for wide-angle lens instantly, fitted with turntable and splendid three-fold stand, used once, sacrifice for £5, cost nearly double a few months since, and Taylor's plate, R.R. lens with iris diaphragm, £2 10s., must sell.—No. 397, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Lancaster's half-plate Instantograph set, two double metal slides, perfect condition, 55s. cash.—Brookes, 164, Cambridge Drive, Glasgow.

Sands and Hunter's 10 by 8 camera, rising front, back, etc., all uniform, three double dark slides with carriers for cabinets, 10 by 8 symmetrical rapid lens, 10 by 8 Grubb's pattern landscape lens, leather case, and any amount of dishes, chemicals, and everything requisite, tripod, three folding 8in. head, etc., etc.; samples of work to be seen; first £5 has it. Apply after 11 a.m., not before, as we do not get up till late. —87, Burton Road, Brixton.

Half-plate long extension best London-make camera, leather bellows, all movements, two best double slides, quarter carriers, extra fronts, polished ash tripod, 57s. 6d., cost £4 10s., nearly new; lock-up case and long strap for same, 8s. 6d.; giving up.—Lloyd, 4, Academy Buildings, Fanshaw Street, Hoxton, London.

Whole-plate camera, by Callaghan, Bond Street, beautifully finished, all movements, three double slides and carriers for quarter and half-plates, in canvas case, nearly new, 90s. Artist's hand camera, by Stereoscopic Company, quarter-plates, fitted with Black Band lens, and three double slides, etc., in solid leather velvet-lined case, in new condition, cost £10 10s., 90s.; Ross' lens, very rapid, for portraits or views, rack and pinion, 3¼in. focus, 37s. 6d.—Bensley, 20, Oxenden Street, London, S.W.

A complete half-plate set, consisting of Rayment's patent camera, with three double dark slides, also carriers to take quarter-plate, two lenses, portable symmetrical and rapid rectilinear, by Perken, Son, and Rayment, Phantom pneumatic shutter, view finder, good tripod, focussing cloth, dark lamp, developing dishes, solid leather case for camera, exchange, with cash, for good two-wheel trap suitable for cob, 14 hands, must be roomy at back, to be used by traveller, with brake preferred; must be in good condition; or exchange first-class hand-camera.—R., 36, Cookridge Street, Leeds.

Half-plate 1893 Instanto set, complete, by Underwood, equal new, bargain, 68s.—Merrett, Photographer, Stroud.

Quarter-plate Instantograph, three slides, rectilinear lens (*f*/6), Thornton-Pickard shutter, waterproof case; seen by appointment.—Hutchins, 80, Peckham Road, Camberwell.

Complete half-plate outfit, consisting of Park's patent Victoria camera, three double dark slides, Watson's rapid rectilinear lens with iris diaphragms, Thornton-Pickard time and instantaneous shutter, velvet focussing cloth, all complete in polished mahogany case, partitioned and cloth-lined, also Ashford's patent adjustable tripod; this is a modern high-class set, new last summer, and in every way equal to new; price £9 10s.; approval if carriage paid.—Gibbons, Belvedere, Westminster Road, Eccles.

Splendid polished mahogany camera, oak tripod, and all accessories, Oxford set, by Marion and Co., in excellent order, very little used, sent any address for £3 cash, cost double.—Apply, Wright, 13, Hope Drive, The Park, Nottingham

Half-plate Lancaster's Instantograph, with splendid R.R lens, three metal slides, quarter view lens and stand, approval. deposit, £1 2s. 6d.—Thomas, 1, Grngos Terrace, Port Talbot.

Lancaster's quarter-plate (Le Meritoire), complete outfit, good condition, price £1; also 9in. burnisher, with lamp, perfect, half original price, 10s.; approval. —Sanderson, 13, Cort Street, Blackhill, Durham.

Quarter Instantograph set, without stand, also three Tylar's slides and adaptor, and 5 by 4 R.R. lens, 40s., or exchange Wray's 5 by 4 R R Offers?—J. W. C., 115, Chetwynd Road, N.W.

Studio.—Portable studio, 18ft by 8ft., nearly new, good lighting, price £5, or offers; can be seen any time.—J. Slator, Melbourne Cottages, Stuart Road, Newlands, Peckham Rye, S.E.

Sundries.—30s. worth photo accessories, and materials for 15s., bargain.—Jeffrey, Wribbenhall, Bewdley.

Must be sold, owner leaving London. A quantity of photographic requisites. For particulars send stamped enveloped to Wharton, 164, Charing Cross Road, W.

On sale, about 83 numbers, assorted, of the AMATEUR PHOTOGRAPHER, extending over the last two years, 4s. 6d. the lot, carriage paid, or exchange.—Butterworth, Bank Street, Darwen.

AMATEUR PHOTOGRAPHER, 12 of the volumes, clean, 15s., or offers.—G. W. Smith, Bromley Common, Kent.

Exchange small powerful induction coil and 40 copies AMATEUR PHOTOGRAPHER for anything useful in photography, or 9s. cash.—Harrison, 84, Park Street, Darlington.

Half-plate camera, etc., advertised last week, £4 15s. (lowest); 9in. burnisher, 12s; Griffiths' 30s. enlarging camera, 17s. 6d.; field-glass, sling case, 17s. 6d.; handsome ebonised graphoscope, 27s. 6d.; box for lamplight enlarging, 6s.; Tylar's washer, 5s. 6d.; half-plate changing bag, 5s. 6d.; large dishes, sundries, cheap.—H., 21, Avenue Villas, Cricklewood, London, N.W.

WANTED.

Cameras, Lenses, etc — Modern whole-plate camera, three backs, symmetrical lens, shutter; state weight.—Box 21, Widnes.

Hand-cameras, etc.—Wanted hand-camera 5 by 4, and without lens preferred.—W. Woodcock, Town Hall, Warrington.

Rouch's quarter-plate hand-camera, Excelsior or Eureka, wanted, in good condition, must be cheap for cash. Lowest price and particulars to J. D., Box No. 1, *Daily Chronicle* Office, Fleet Street.

Lenses, etc.—Wanted, Beck's quarter-plate R.R. lens, 5in. focus, or similar lens by first-class maker.—No. 399, office of this paper, 1, Creed Lane, Ludgate Hill, E C

Set.—Wanted, Lancaster's half-plate Instantograph, R R. lens, three dark slides and stand; approval; deposit.—F. Markillie, Holbeach.

Wanted, good half-plate set, all latest improvements, suitable also stereoscopic work.—Box 244, Manchester.

Stereoscopic Apparatus.—Wanted, matched pair of stereo lenses, working at f/11 or larger aperture, about $3\frac{3}{4}$in. focus.—3, Walpole Street, Wolverhampton.

Sundries.—Wanted, photographic apparatus, exchange volumes "Reporters' Magazine," including the rare first volume.—Geo. Birtwhistle, 8, Georges Road, Liverpool.

Bargains in Cameras and Sets.—Lancaster's whole-plate brass-bound Instantograph, wide-angle movement, all latest improvements, leather bellows, etc., fitted Lancaster lens, iris stops, instantaneous shutter, two double brass-bound slides, carriers and folding stand, finest condition, £6 17s. 6d., whole-plate camera, Instanto, by Underwood, double extension, leather bellows, rising, falling, and cross fronts, swing-back, etc., double dark-slide, carriers, rapid rectilinear lenses, and folding three-fold stand, £5 17s. 6d.; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; half-plate Lancaster's Instantograph camera, double extension leather bellows, all improvements, rapid rectilinear lenses, two double slides, folding stand and case, £3 17s. 6d.; half-plate camera, by Houghton, Holborn, grand lot, double extension, rising and falling front, swing and reversing back, three double slides, grand rapid rectilinear lens, iris stops, works f/8, and three-fold stand, set as new, £6 10s; Lancaster's 5 by 4 International, all latest improvements, wide-angle movements, fitted Optimus rapid rectilinear lens, iris stops, double slides, and folding stand, £3 15s.; half-plate Duchess camera double extension leather bellows, rising front, swing and reversing back, fitted rapid rectilinear lens by Laverne, two double dark slides, three-fold stand, in waterproof canvas case grand lot, £5 15s. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Tench No. 7 landscape, covers 12 by 10, rotating stops, grand definition, as new, 70s., cost £3 10s.; whole-plate rapid rectilinear by Watson, Holborn, fitted iris stops, works f/8, condition as new, 75s.; Grubb aplanatic doublet lens, fitted Waterhouse stops, works f/8, best condition, £3 15s.; half-plate rapid rectilinear lens by Vevers, Leeds, fitted Waterhouse stops, works f/8, $8\frac{1}{2}$ in. focus, 18s. 6d.; 7 by 5 rapid rectilinear by Browning, fitted Waterhouse stops, grand definition, as new, 27s. 6d.; 7 by 5 rapid rectilinear lens, by Laverne, works f/8, movable hood, grand definition, covers well, as new, 27s. 6d.; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s.; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works f/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s.; 7 by 5 Optimus landscape lens, rotating stops, finest condition, 27s. 6d.; 7 by 5 "Black Band" lens by London Stereoscopic Co., Waterhouse stops, covers well, finest order, 45s.; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works f/8, movable hood, as new, 45s.; 5 by 4 Dallmeyer wide-angle landscape lens rotating (1A patent), rotating stops, grand definition, 50s.; Ross's No. 4 portable symmetrical, 6 in. focus, rotating stops, as new, 63s.; Laverne 5 by 4 wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B), Waterhouse stops, rack focussing, condition as new, £3 17s 6d., cost £6 5s.; 5 by 4 Optimus rapid rectilinear, Waterhouse stops, works f/8, as new, 27s. 5d. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

Bargains in Hand Cameras.—Laverne's hand-camera, fitted very fine landscape lens, iris stops, time and instantaneous shutter, two finders, automatic changing, carries twelve quarter-plates, covered leather, £2 17s. 6d.; Beck's Frena hand-camera, fitted Beck's Autograph rapid rectilinear lens, carries forty films, finest condition, covered leather, loaded with twenty films, £4 5s.; Beck's hand-camera, 5 by 4, fitted Beck's autograph lens, iris stops, eight double dark-slides, Newman's time and instantaneous shutter, two finders, adjustable focus, covered in morocco leather, very finest condition, take £10 10s.; Talmer hand-camera, as new, good lens, time and instantaneous shutter, carries twelve quarter-plates, bag changing, two large finders, lowest, 63s.; Adams' Ideal hand-cameras, fitted rapid rectilinear lens, time and instantaneous shutter, two finders, carries 12 quarter-plates, covered morocco, £5 7s. 6d.; Houghton "London" hand-camera, fitted good lens, adjustable finder, shutter for twelve quarter-plates, ebonised, as new, 45s.; Fallowfield's Facile hand camera, fitted R.R. lens, time and instantaneous shutter, carries twelve quarter plates, condition as new, £3 17s. 6d.; Radial hand camera, by Marion, fitted "Soho" lens, carries twelve quarter-plates, shutter, two finders, focusser, etc., in leather case, £5 17s. 6d.; Lancaster's Omnigraph hand-camera, fitted Lancaster lens, see-saw shutter, finder, carries six quarter-plates, 15s.; Ariel hand-camera, leather bellows, fitted Wray's 5 in. R.R. lens, rotating stops, Thornton Pickard shutter, three double book-form slides, finder, complete in case, as new, £5 10s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Magic Lanterns and Slides. — Walter Tyler's Helioscopic is perfection of all lanterns, supplied to Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.—Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's Best Triples and Biunials are unsurpassed, and perfect in every detail. Good biunials, mahogany bodied, brass fronts, and all improvements, £7 10s.; single lantern, with 4 in, condensers, portrait front lens, 4-wick lamp, complete, in case, 27s. 6d.—Walter Tyler, 48, Waterloo Road, London.

Lantern Lenses.—Specially constructed. Walter Tyler's new Helioscopic portrait combination lantern lens gives the most perfect definition and brilliancy, can be fitted to any lantern, and for excellence cannot be surpassed. No other maker has this lens, which is manufactured expressly for Walter Tyler, 48, Waterloo Road, London.

Regulators and Gauges.—Great reduction, in price. Either can now be had of Walter Tyler for 14s. each. The largest stock of gas cylinders in England. Best seamless steel, tested and valved, and all sizes at very low prices.

Slides from Negatives and Pictures.—Walter Tyler manufactures and colours slides on the premises, thus ensuring speedy delivery, and prices are most moderate.—Walter Tyler, 48, Waterloo Road, London.

Biunial Lanterns.—If you are in want of a really good biunial lantern, perfect in every respect, call and see Walter Tyler's entire brass fronted, mahogany-bodied, lined with Russian iron, and fitted with new best quality lenses, and sold at a most moderate price. The top lantern will take a 4-wick lamp. These are great bargains.—Walter Tyler, 48, Waterloo Road, London.

Hire Department is now perfect. Largest and best collection of slides in the world; over 200,000 always in stock. Temperance, travels, Scripture, educational, comic, tales, etc. Cheaper than any other house, no extra charge for coloured slides or effects. Special terms for large quantities.—Walter Tyler, 48, Waterloo Road, London.

Lanterns and Slides.—If you wish to hire, purchase, or exchange, you cannot possibly do better than go to Walter Tyler, who makes this business a specialite, and you will thus save dealer's and all intermediate profits.—Walter Tyler, 48, Waterloo Road, London.

Second-hand Lanterns and Slides at very moderate prices, also all kinds of apparatus. Send for large catalogue, 420 pages, with instructions for working lanterns of all kinds, and costing an immense sum to produce, sent free for 6 stamps. Small catalogue and second-hand list, post free.—Walter Tyler, 48, Waterloo Road, London.

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; scientifically constructed, not commercial; several whole and half plate for sale, cheap.

The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Science Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

Magic Lanterns, Magic Lanterns.—Largest assortment in the world, cheapest and best, nicely japanned lantern, 4 in. double condensers, portrait combination front lenses, rack and pinion, four-wick lamp, in case, £1 7s. 6d. Others more elaborate, but as cheap.

The Docwra Triple Prize Medal, highest award, supplied to Dr. H. Grattan Guinness, Capt. C. Selwyn, Madame Adelina Patti, and the Royal Polytechnic, etc.

The Malden Triple; supplied to B J. Malden, Esq.; unparalleled results; Capt. Chas. Reade, R.N.

Fine Triple Lantern; telescopic draw tubes, four set of high-class lenses, £38 10s., worth nearly double. Given away.

Special Triple; mahogany, entire solid brass fronts, £12 12s.; a really good lantern, unequalled.

Elegant Mahogany Biunial; brass fronts, £7 10s.; blow-through safety jets, 6s. 6d. and 8s. 6d.; mixed gas jet, 12s. 6d.; Malden double dissolving tap, 12s. 6d.; regulators 12s. 6d.; gauges, 12s. 6d.; grand effects; particulars free, before purchasing. Send for Mr. Hughes's grandly illustrated catalogue, over 180 finely cut original wood engravings, price 6d., postage 3d.; separate list of 60,000 slides, price 6d., postage 3d.; pamphlets free; second-hand lists free of bargains.—W. C. HUGHES, Brewster House, Mortimer Road, Kingsland, London, N. Fifty slides, all nicely coloured, on loan for 3s., in special despatch boxes.

ENLARGING APPARATUS, quarter-plate, 5in. condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work. —Hume, 1, West College Street, Edinburgh.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

REDUCING WHOLESALE STOCK.

SECOND ANNUAL STOCK-REDUCING SALE to clear for the coming Season, 50 per cent. Reduction in some cases! New high-class Cameras, all sizes; Platinotype and Key Hand-Cameras. Ross, Dallmeyer, Beck, and Wray's R.R. and Wide-Angle Lenses. 50,000 Mounts, all sizes; Canvas and Leather Cases, Tripods, Presses, Dishes, and all Accessories Special opportunity to purchase complete outfits at great reductions. Printed Lists on application to EDWARD PECK, Photographic Chemist, East Dereham, Norfolk.

The AMATEUR PHOTOGRAPHER

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Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 447. Vol. XVII.] FRIDAY, APRIL 28, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 till 5 o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from 10 till 1 o'clock.

Our Views—The New Club—The Club Company—The Challenge Cup and Medals—The Amateurs of New York and their English Brethren—The Solar Eclipse—Lantern Slides—International Exhibition at Geneva—Photography for Architects—"Figaro" and Photography.

Leader—Orthochromatic Photography.

Flotsam and Jetsam. By Anchorite.

Echoes from Sydenham. By The Cynic.

Articles—The Chemical Treatment of Prints after Fixing—The Status of Hand-Camera Work (Hinton)—Dry Plate Making at Home (Bayley)—Determination of Plate Speeds (Cowan)—Naturalisiic Photogaaphy (Emerson)—Photogravure (Denison).

Letters—Tooting Camera Club (Child)—Printing Solio (Phosphate)—Camera Club Conference (Davison).

Apparatus—Haigh's Turnstile Camera—The Princes' Brush Rack.

Catalogue—Imperial Dry Plate Company.

Reviews—Amateur Photography—Practical Pocket-book of Photography.

Societies' Meetings—Accrington—Ashton—Birmingham—Brixton—Croydon — Derby— Eastbourne — Gosport — Hackney—Lincoln—Margate—North Middlesex—Oban — Putney — Richmond—South London—Tooting—Ulster and Belfast.

Monthly Competition.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

TERMS OF SUBSCRIPTION—

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Print Competition, No. 48, Architecture.—Latest day, May 15th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, May 26th, 1893.)

At the public meeting held in the Memorial Hall as to the new club, all the recommendations of the committee were adopted, and Messrs. W. Fenton Jones and C. H. Oakden were appointed Secretaries, the address of the former being 12, King Edward Road, Hackney. These gentlemen will be pleased to receive the names of intending members, and we would draw attention to the fact that the first 500 members will be elected without entrance fee.

* * *

As the initiatory expenses of furnishing, etc., will be rather heavy, it has been proposed that a limited liability company should be formed with an issue of 100 £5 shares, with power to increase, £2 10s. payable on application and £2 10s. on call. Already a considerable number of shares have been applied for, and the hon. secretaries request us to draw special attention to this part of the scheme.

* * *

It is not, as has been suggested, that the company has been formed for the purpose of making money out of the new club—for after 5 per cent has been paid on the paid-up capital, all further profits would accrue to the club. We trust to see a hearty response to the call.

* * *

What is the matter? The West London Society take the Challenge Cup at the Palace for the best collective exhibit, but not a single member gets a medal. Surely some explanation should be forthcoming. This is one of those paradoxes which puzzle an outsider immensely.

* * *

The Society of Amateur Photographers of New York desire to extend the hospitality and use of their rooms to all amateur photographers who intend visiting the World's Fair at Chicago, and who will pass through New York during the coming summer.

* * *

Up to the present time the reports as to the photographing of the solar eclipse have been very satisfactory, though of course after the development of the plates only will the astronomers be able to speak with anything like certainty.

* * *

At a recent meeting of the Society of Arts, when a paper was read on "History and development of pattern designing in textiles," one of the speakers said "that the first thing which struck him in connection with the paper was the admirable way in which the lantern might be made use of for illustrating lectures on this and kindred subjects, and he thought this was a matter which might well be pressed on the attention of those who were now trying to do great things with the funds at their disposal, that were voted by the County Councils all over the country."

* * *

PROBABLY this gentleman was a photographer, or else had attended a lecture illustrated by means of lantern slides. Slowly but surely the lantern is making its way, and what with the adaptation of the same to class lectures, we shall soon have a class of photographers who will do nothing else but photograph for the purpose of making lantern slides.

* * *

AN international exhibition of photographs and apparatus will be held at Geneva from 1st to 31st August. The charge for wall space is to be 10 francs per square metre, and carriage has to be paid both ways. There are three classes open to amateurs :—

Class 1. Portraits, groups and genre.
2. Landscapes, sea-pieces, architecture, interior and reproductions.
3. Lantern slides.

* * *

THE charge for wall space and carriage will come rather heavy on English exhibitors, but silver gilt, silver, and bronze medals, and diplomas will possibly be an inducement to some to send over. M. Th. Penard, 3, Boulevard de Plain Palais, Genève, is the Secretary, and from whom all information and entry forms may be obtained.

* * *

IN a paper read before the Society of Architects lately, Mr. Wm. Allport, F.S.I., summed up the following advantages photography offered to architects, surveyors, and lawyers :—

"(1) It affords to the architect and student the advantage of seeing faithfully delineated architectural examples and subjects both of ancient and modern works; (2) it allows architects to have copies made of their own drawings, whether they are sketches, studies, or works to be executed; (3) it affords the architect and architectural student the opportunity of carefully comparing the effects of various designs of buildings that have been published or executed, and allows them to make a comparative analysis, either for study or to enable them to judge as to what in their opinion is good and to be followed, or rejected as bad or inappropriate, for their purpose or present requirements in the working out of their designs; (4) it offers to the architect and student the advantage of making combinations in their designs from photographs of works and designs—combinations which they could not effect by the mere inspection of a building or by making casual sketches, even if time and opportunity permitted; (5) it enables the architect to take or have taken for him photographs of the buildings he is erecting."

* * *

IN the current issue of *Figaro* the report as to the accession of H.R.H. the Duke of York to our ranks, gives rise to some amusing (?) comments; the writer says :—

"There are two kinds of individuals on this earth whom I hold particularly in abhorrence—stamp collectors and amateur photographers. As for the amateur photographer, put not your trust in him lest you be brought to naught. He goeth about like a roaring lion seeking whom he may devour—or distort. I always fancy that he has a camera concealed somewhere under his clothes, and whenever I see him bearing down on me I flee from the wrath to come down a side street. It is no use, however. Compared with the amateur photographer, the insurance agent is a modest, retiring, and diffident person. I number one among my friends—or rather I *used* to number one among my friends—whom I fully expect to see some morning, when I awake, standing at the foot of my bed with a camera rigged up for action, and saying excitedly, 'Now don't move, please. That will do nicely!' That just shows the fathomless degradation of the fellow. He is so unutterably shameless that he would 'take' a man when he is asleep, with his mouth wide open probably, and his hair sticking up like the quills upon the fretful porcupine, or like the feathers upon the headdress of the uncombed Indian. And worse than all, he would distribute these lovely souvenirs among your lady acquaintances. I have a number of amateur photographs of myself at home—they are hidden deep in a secret drawer, and wild horses shall never, never drag them to the light—in which my own mother would fail to trace the slightest resemblance to the handsome features of her blue-eyed boy. Worse than all, the Duke has acquired the most deadly form of the malady—the one in which the patient has an insatiable craze for wielding the detective camera. Now, from the common or three-legged variety the victim may escape and save his soul alive, but the detective or manual species there is no avoiding. With it the photo fiend can catch the living men and manners as they rise. You are 'taken' unawares, and before you can say 'Jack Robinson' your countenance is caricatured in black and white."

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PROBABLY few of us can remember such a spell of magnificent weather as we have been having lately so early in the year. We were chatting one morning this week with a friend on board one of the steamers which the fine weather has induced us to utilise, instead of the evil-smelling underground, as a means of getting to the city, when he said : "Oh! bother the weather, I like some decent clouds; with such blank, staring blue skies as we are getting now there is no chance of making pictures."

* * *

THIS is one way of looking at it, certainly. If the weather prophets tell the truth, we are to have a fine May, and then incessant wet and showery weather all through the rest of the year. *Carpe diem! Quam minimum credula postero.*

Echoes from Sydenham.

THE all-absorbing topic of conversation during the past fortnight has been the Exhibition and all its works. Everybody who, photographically, is anybody has, of course, been to see it. Many have expressed more or less valuable opinions about the general management, and not a few have been going about ever since looking down in a very patronising manner upon all those miserable mortals who have not yet visited the Palace.

THE air was pregnant with rumours of every description as to which society had been fortunate enough to win the cup. Secretaries were driven nearly frantic with the diversity of these rumours, and pestered the officials in the know for authoritative information; but the said officials remained obdurate, and would not put the secretaries out of their misery by revealing the coveted secret until the appointed time.

WHEN the judges' decisions were finally made known what a flutter there was in the photographic dove-cots!

A THRILL of surprise ran through the length and breadth of one society when it was discovered that a humble bromide had vanquished several proud platinums—according to the idea of the judges. It was not an ordinary bromide, however, being of the ilk called "naturalistic" and "rough," and it had also been toned. Uncharitable critics affirmed that its beauty was fast fading, and would soon be no more, expressing at the same time the greatest wonder that the judges should have preferred such a fugitive print to the permanent ones (not mentioning their other qualifications) not far from it.

IT was interesting to witness the movements of the technical critics as they went from picture to picture, studying them from various points of view. Their remarks were not always flattering, especially in one or two instances.

IF they had been adjudged victors in the fight, a certain society were prepared to "wet" the cup by convening a special dinner in its honour. The feast, sad to relate, will not now take place.

THE Palace grounds are in splendid condition at the present time, and it is a welcome variation to enjoy in their midst a siesta and a smoke. Many well-known photographers were thus to be seen disporting themselves and contemplating the beauties of spring, after having studied the whole of the exhibits and grown somewhat tired thereby. THE CYNIC.

ORTHOCHROMATIC PHOTOGRAPHY.

In 1873 H. W. Vogel was studying the action of the solar spectrum on the haloid salts of silver, and in the course of his research he used a collodion dry plate stained with a dye for the purpose of preventing halation, and found that it was sensitive to the yellow rays much more strongly than ordinary plates, and in a communication to the German Chemical Society * he said, after briefly noting the absorption of certain rays by an alcoholic solution of the dye, "I now tried whether other dyes behaved in a similar manner, that is to say whether they rendered bromide of silver sensitive to those rays which they absorbed. I first tested corallin. The diluted solution of this gives in the spectroscope, like aniline red, an absorption band between D and E, that is to say it absorbs the yellow and yellowish-green light; the blue, on the other hand, is permitted to pass to a tolerably considerable extent. If therefore sunlight is passed through the solution of corallin before it passes through the prism, the yellow and green is wanting in the spectrum which is then produced. There appears then a dark absorption band in the place where the yellow and green is usually to be seen. I now dissolved corallin in alcohol, and added some of it to my bromised collodion, so that it was strongly coloured red. With this collodion, collodio-bromide dry plates were prepared which were distinctly red, and which when exposed to the spectrum confirmed my assumption, that is to say, the plates showed themselves sensitive to the indigo, from there the sensitiveness decreased towards the bright blue, was weak at F, then again increased and proved to be almost as vigorous in the yellow as in the indigo. Thus a method was discovered of preparing bromide of silver plates which should be as strongly affected by a hitherto considered chemically inactive colour, namely yellow, as they would be by indigo, which had hitherto been the most chemically active spectrum colour.

"From these experiments I dared to hope that any other substance which strongly absorbed the red would also increase the sensitiveness of the bromide of silver to red. Such substances I found among the green aniline dyes. These strongly absorb the red rays between the lines D and C; with greater concentration the absorption extended nearer to D, the yellow, green, and blue passed through with but little reduction. A collodion dyed with this green proved to be, in fact, sensitive to light right into the red. The sensitiveness decreased from the indigo to the yellow, was almost *nil* in the orange, then again increased, and in that place where, as mentioned above, the absorption band appeared, a strong action appeared in the red.

"From these experiments I believe we may with tolerable certainty assume that we are in a position to make bromide of silver sensitive for any desired colour, or the already existing sensitiveness for certain colours to increase; it is only necessary to add to it a substance which will hasten the chemical decomposition of the bromide of silver, and which will absorb the desired colour, and not the others. The hitherto troublesome photographic inactivity of certain colours ought then to be overcome."

It is needless to state that, like most discoveries, especially when connected with photography, this was met with a perfect furore of disbelief, but the Berlin *Akademie der Wissenschaften* recognised that there was at least some truth in it, and granted Vogel substantial subsidies to further his work.

The first to really support Vogel's discovery was Becquerel, who, in a communication to Académie des Sciences, Paris,† describes the success of experiments undertaken at his direction, and it was found that chlorophyll, the green colouring matter of plants, also increased the colour sensitiveness of bromide of silver to yellow and red.

In 1876 Colonel Waterhouse contributed a paper to the *Photographic Journal*, January 15th, 1876, p. 135, on "The Action of Eosin on the Photographic Spectrum," in which he states that "dry plates prepared with this collodion (*i.e.*, stained with eosin), and exposed to the spectrum, showed on development a much greater sensibility to the green rays than to the blue, the maximum of action being in a band below E, extending to about half way to D, and then decreasing till all action ceases just below D. Above E the action slowly decreases nearly to F, beyond which very faint action extends far into the ultra violet. The increased action in the region of the yellow and green is very strongly marked, particularly by its contrast with the very weak action throughout the blue and violet."

Flotsam and Jetsam.

It seems to be a matter of etiquette, now and here in this nineteenth-century Europe, just as in olden time and in far-off savage lands, that when two high and mighty personages meet one another there should be an interchange of gifts. The custom was kept up in the recent visit of the Emperor and Empress of Germany to His Holiness the Pope.

The Emperor's gift to his holiness is worthy of note as showing how thoroughly up to date this most energetic of Sovereigns is. It consisted of "a photograph in colours, consisting of a group formed by His Majesty, the Empress, and all their children."

"In colours," mark! It would be interesting to learn a little more about this photograph which so delighted the Pope. There is considerable vagueness about this brief description gleaned from the daily press. What was the process employed, we wonder.

Science is not ungrateful for all that its handmaid, photography, has done and is doing to aid its progress, and it now and again gives practical expression to its gratitude. For instance, an electric lamp has lately been devised which is admirably adapted for photographic purposes. It is charged for 30 hours, and can either be used as a table lamp with white light or fitted with yellow or ruby screens so as to permit of its use in the dark-room. Thus by means of the screen either actinic or non-actinic light can be obtained at the operator's pleasure.

The expeditions sent out to observe the total eclipse of the sun have sent home encouraging reports of their success. All the conditions were favourable and the photographic work was thus done to the best advantage. Various heralds of the fuller results to follow have already reached London, and it is said that the American observers in Chili secured one photograph which gives an image of the sun four inches in diameter, while the corona covers a plate whose dimensions are 18 by 22.

They seem to have carried photography a good deal further on the other side of the Atlantic than we dull, stolid dwellers in the old world have cared to do. The other day the announcement was made in an American journal that a certain Yankee coroner had resolved to have a photograph taken of everybody on which he should have to hold an inquest.

A good but gruesome idea, truly. An album of "accidental deaths," "murdered" and "suicides," would undoubtedly be of service at times for the purpose of identification, and perhaps possess some interest for the anthropologist, but ordinary people, one would imagine, would rather fight shy of it.

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* "Berichte der d. Chem. Gesellsch." 1873, p. 1,305.

† "Comptes Rendus," vol. lxxix., p. 185, 1874.

Quite different and of a far more cheerful character is another Yankee notion. A marriage license was produced at the Law Courts in London during the past week which excited considerable laughter. As counsel remarked, it was "of a very gaudy character," and among other decorations contained places for two photographs.

Now this is by no means a bad idea. Both for purposes of identification and for reasons of sentiment it is to be commended. No photographer would probably object if it were further made compulsory for every bachelor and spinster entering into the marriage bond to deposit their photographs with the registrar. An album of matrimonial *debutants* would certainly be far more pleasant than the other.

And for a comic album one might well go to the spirit photographers, for, as a contemporary in commenting on recent events has said, the "psychic photographs" obtained up till now rather lead one to believe that the spirits grovel in mountebank tricks of a very poor sort.

A new "illustrated magazine of fine and applied art" entitled the *Studio*, has just been published. It contains the promise of success, and certainly goes a long way on the road to deserving it. To photographers, especially those who follow more especially the art side of photography, it should be a very useful publication.

In proof of the soundness of its views it may perhaps be permitted to quote the following from a notice of some platinotype photographs by Mr. Keene, of Derby :—"Even owning that only a great master could surpass this work in its chosen ground, one realises that the most perfect work of the camera lacks the elusive charm, the discriminative selection, and the translation of facts to art which must always leave the true artist room to beat its best record; but that these photographs are more artistic in every way than the majority of etchings or monochrome drawings may be readily admitted."

Here is recognition of the claims of photography with a vengeance! The passage will bear study and repay remembrance by all those who aspire to excel in artistic photography. If may be pointed out that the productions of the camera need not lack the charm given by "discriminative selection," however. Herein the photographer has every whit as much advantage as the artist.

The Anchorite.

Reviews.

Amateur Photography. By W. J. Lincoln Adams. Published by the Baker and Taylor Company, 740 to 742, Broadway, New York. Price 50c.

This little work, which is a rachauffé of articles contributed by the author to various journals, will doubtless prove of value to those commencing photography. It is characterised by a simplicity and clearness of language decidedly commendable.

Practical Pocket-book of Photography. By Dr. E. Vogel; translated by E. C. Conrad, F.C.S. Published by Swan, Sonnenschein, and Company. Price 2s. 6d.

This is a fairly complete compendium to all the leading photographic processes in current use. The information is condensed and is without any padding, and will be found accurate and reliable. Both the wet and dry collodion processes are included, and the different printing processes without the salts of silver, such as ferroprussiate, ferrogallic, aniline and platinum processes. The newer developers Amidol and Metol are also included, and a copious index completes the usefulness. The translator has done his work well, though he makes a curious slip in the introduction where he states the quarter-plate measures $3\frac{1}{2}$ in. by $4\frac{1}{2}$ in.

Letters to the Editor.

TOOTING CAMERA CLUB.

Sir,—I think it is my duty to call the special attention of photographers who may reside in the neighbourhood of Tooting, Balham, Streatham, Wandsworth, etc., to the announcement made in this week's report of the Tooting Camera Club, viz., that we shall hereafter have our own meeting and dark-rooms, situated in High Street, Tooting (near the tram terminus), being both central and convenient of access.

Few of the London clubs have the same facilities as we shall soon be in possession of, and photographers who would like to share the same but are unacquainted with any of our members, should write to me at the undermentioned addressed.—Yours faithfully,

J. F. Child (Hon. Sec.).

Harzville, Leigham Valley Road, Streatham, S.W.

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PRINTING SOLIO.

Sir,—For the benefit of others I should like to say that I have found that Solio requires to be printed in a strong light. A weak light does not give a vigorous print. I do not think, however, that it should be printed from an ordinary negative in direct sunlight. If the negative be dense, it is best to print in sunlight.—Yours, etc.,

Phosphate.

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THE CAMERA CLUB CONFERENCE.

Sir,—As there appears to be some misunderstanding in regard to the publication of papers read at the Camera Club, will you kindly allow me to state that, although all rights are reserved as regards copying, the public are not debarred from access to the papers, inasmuch as the full Conference Journal, and all important papers from the ordinary monthly issues of the *Club Journal* will be published by Messrs. Harrison and Sons separately, in pamphlet form, available for subscribers.—Yours, etc.,

G. Davison
(Hon. Sec.).

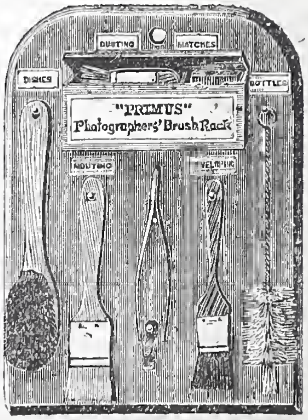
Apparatus.

HAIGH'S PATENT "TURNSTILE" CAMERA.

Mr. J. Haigh, of 77, Dale Street, and 95, Lord Street, Liverpool, has sent us one of the above, which possesses some novel points of construction. Its external appearance is an oblong black box, measuring $9\frac{1}{4}$ by 5 by $8\frac{1}{4}$, with a leather handle. The shutter is merely passed backwards and forwards in front of the lens by a lever at the side. The lens is achromatic. The side of the camera opens, and the plates are placed back to back in wooden frames, which revolve on a pivot, and are actuated by a pointer on the outside. After exposure, the pointer is revolved to the next number on the dial, and after four plates have been exposed the camera is turned upside down and the front revolved, and four more plates are ready for use. By the aid of the pointer a swing-back action may be utilised, and the camera may also be used for taking stereo views by shifting the front. Price, 27s. 6d., or with two finders, 32s. 6d. For those with limited purses this will be found a useful camera.

THE "PRIMUS" BRUSH RACK.

W. Butcher and Co., of Blackheath and Regent Street, have introduced a very handy little accessory to the tidy worker, which, as shown in the accompanying diagram, consists of a rack with brushes of various kinds, plate and film lifters. Price, 5s. 6d. A very handy, useful adjunct to every dark-room.



Catalogues.

The Imperial Dry Plate Company, Cricklewood, London, N.W., have sent us a neat little pamphlet of prices of their well-known plates, opals, and lantern plates. It contains also the formulæ recommended for their plates, in which we note they recommend Warnerke's amidol developer.

Amidol	½ oz.
Sodium sulphite	5 „
Water	25 „

Dilute with three to ten times its volume of water before use.

Also the following reducer:

Cupric chloride	20 gr.
Water	1 oz.

Immerse the well-washed negative in this till the surface is white, then wash well and place in a dilute solution of ammonia.

This seems decidedly a useful improvement on any method involving the use of hypo, as less washing is required afterwards.

* * *

The Chemical Treatment of Prints after Fixing.

At the meeting of the North London Phot. Soc. on the 18th inst. Mr. W. Walker was in the chair. The Hon. Sec. said that with the fixing bath of ordinary strength he did not find amidol-developed prints lose density, and he showed a print which had been treated as follows:—After exposure the print had been cut into halves, one of which was developed with amidol and the other with eikonogen as equally as possible. The print being then cut into quarters, two of them, one by each developer, were left in the fixing bath for half an hour and the other two for an hour. After washing, the print was mounted, and no sign of reduction was apparent in any part.

Mr. Hart then gave a demonstration on "The Chemical Treatment of Prints after Fixing." He said the treatment referred to had for its purpose the elimination of hyposulphite of soda from the prints by chemical means instead of by the prolonged mechanical washing, which latter method was uncertain in bringing about the desired result, and generally brought about an undesired result by deteriorating the brilliancy of the prints. He had demonstrated his process to his fellow-members of the society some years ago, but, in compliance with a request, he had pleasure in bringing it again before them, the more so as only recently he had ascertained its usefulness in the manipulation of the gelatino-chloride and bromide papers, which had come into use in recent times. He had brought prints on albumenized, developed bromide, and printing-out gelatino-chloride papers. After fixing they had been washed in three changes of water for two or three minutes in each water. He had a bottle of the third washing water with him, which he would presently show was well charged with hypo. The tray into which he was now about to put the prints contained a solution composed of 30 minims of his hypo-eliminator (a special preparation of hypochlorite) to 10 oz. of water. An iodide test paper, prepared with iodide of potassium and starch dipped into this bath, was coloured a deep blue, caused by the production of iodide of starch. This paper being then put into some of the third washing water just mentioned, was deprived of the colour, showing the presence of hyposulphite of soda in the water. The prints were then placed in the bath for five minutes. A test paper was not then so deeply coloured by it as at first, showing that the hypo in the prints had attacked the iodine in the solution and rendered it less powerful to produce iodide of starch. The bath was then poured off and another of the same strength poured over the prints, in which they were left for another five minutes. A test paper then dipped into this bath turned the same deep blue tint as the one dipped into the fresh solution, showing that there was then no hypo left in the second bath. The prints were then removed to a bath of 20 minims of strong ammonia to 5 oz. of water. The ammonia bath combines with the remaining eliminator, and there are left small quantities of chloride of sodium, ammonium, and sulphate of soda only in the solution, which are all removed by the final rinsings, and traces of which are of no more harm than the natural salts of ordinary tap water. After remaining in the ammonia bath for five minutes the albumen prints were rinsed in two or three changes of water, and were then ready for mounting. The gelatine prints can be put into an alum bath for a short time before the final rinsings. The whole process takes about thirty minutes.

Mr. Bishop: The action of the hypo dissolves the unaltered chloride of silver, and produces a double hyposulphite of silver, which is redissolved by the hypo, and is then perfectly soluble, and can be washed out. If, instead of washing out, you eliminate the hypo which holds the silver in solution, it would seem that the silver must be dropped in the process, and this left in the print would be deleterious.

Mr. Hart: Not exactly so. The first action of the hypo is to produce hyposulphite of silver. This, in presence of an excess of sodium hyposulphite, forms the double hyposulphite of sodium and silver, a salt soluble in water. Now, on adding the eliminator, the hyposulphite is first converted into sulphate, and the trace of silver into chloride in presence of sodium chloride, and then the ammonia bath takes up the traces of silver chloride which is cleared away in solution.

Mr. Parfitt: Under the ordinary process of washing is there no way of ascertaining if there is any hypo left in the print?

Mr. Hart: You cannot very well arrive at it without destroying the print. You can test the washing water by letting the prints drip into water, and then generate hydrogen from that by pure zinc and hydrochloric acid, allowing the resulting hydrogen to impinge on lead paper. If the paper is discoloured you know you have sulphur coming off, and by inference the solution contained hypo.

Mr. Bishop usually tested the washing water with the permanganate of potash test.

Mr. Hart: That is not a delicate test, as any of the oxidisable organic matters found in water will act on the permanganate.

In answer to questions, Mr. Hart said that his process was a safeguard against blistering, and that it was applicable to negatives as well as prints. He had worked the process now for thirty years with uniform success. As a word of warning, in conclusion he would say, when you know that your print is free from hypo, see that the card you are going to mount it on and the mountant are also above suspicion.

* * *

The Status of Hand-Camera Work.

By A. Horsley Hinton.

(*Continued from page* 265.)

I have said that photography shall stand or fall, that is as far as importance and prestige go, according to the motive with which it is pursued, and it may not be unfruitful if for a moment or two we consider what is the aim and intention of the majority of those who use these very popular forms of camera, meaning the hand-camera in the sense in which it is usually understood.

Probably by far the greater number of hand-cameras are purchased and possessed for the mere purpose of practising that species of "snap shotting" which includes the taking of persons unawares merely for the fun of showing them afterwards, the taking of horses and vehicles, boats, etc., in motion, all of which means idle amusement or an exhibition of the result of wonderful mechanism to one's friends, curiosity and astonishment being the chief if not the only emotions which these results awaken; and it will need no logic to show that this is using the hand-camera simply as a superior sort of plaything; it need not do any harm—it amuses and therefore has perhaps some use—but the amusement is of a somewhat lowly kind, and is neither elevating nor instructive and can hardly even be said to give refined pleasure.

Then we have the hand-camera used for securing reminiscences of travel and the likenesses of places and people.

There is perhaps less cause for regret in this than the previous case, inasmuch the photographs of distant localities, famous places, historical scenes, etc., are eminently instructive and intellectually interesting. And yet unless the securing of such photographs has become almost a mania, certainly a hobby, the pursuit will sooner or later pall and cease to command the devotion which it did at first, and the monotony of such pictures, if the collection be large, will strike the most kindly disposed spectator. They may each one form as it were the text for a little verbal description of this or that strange land, beautiful place, or interesting building. The making of the prints and the recollections which they arouse are entertaining to the photographer himself, but the pleasure to himself or his friends is quite different to that awakened by a good picture, be it photograph or painting; they appeal more or less to everyone, yet they stir no one to any great degree, and can in no sense be considered *great*, inadequate of themselves as the outcome of all the past years of photographic labour and discovery, only satisfactory if regarded as one little contributory to the general triumph which to-day crowns the efforts which photographic workers have put forth in the past.

Such "snap shots" and "bits," and views, as I have intimated, we will admit, appeal to a very large number of people, and a very pardonable vanity is the usual result to their many expressions of surprise and approval, but it comes about that in hand-camera pictures, as in all others, the best things only find a small appreciative audience, but that limited appreciation, neither loud-voiced nor demonstrative, is probably better worth the having, inasmuch as it is not easily gained, but once secured is rarely lost.

There are seen every here and there little hand-camera pictures which, though passed over by the crowd, are discerned by the more cultivated eye and are welcomed and prized; even the more average onlooker will admit their superiority perhaps when they are pointed out. And yet perhaps, good reader, you have found it difficult to say precisely what it is that makes them thus better than their fellow prints; not necessarily are they better done, more correct photographs, or more clever in their technical treatment. Is it not the same with larger pictures, that is to say with pictorial photographs made with the usual form of camera, etc.?

Try and decide from an inspection of the picture what the *motive* was of the man who made it, what was it that arrested his step, that made him pause for a moment, choose a given position and then proceed to give the necessary exposure? Or if the subject be one which did not admit of pause, what was it that moved him to suddenly place the camera in position and as suddenly release the spring?

Was it the striking contrast of brown sails against a gleaming bit of water, or the smoke-wreaths circling upwards across the piled-up clouds? Did a drifting cloud shadow swiftly darken the belt of trees which skirted the meadow and make the level grass stand away in bright relief; or a passing breath of summer air make long streaks of ruffled water across the deep reflections? If it was some such effect, some such smile or frown upon the face of nature, which, regardless of the place or what it was or where it is, that seems to have impelled the picture maker, be sure the motive was a good one—it appealed to his refined senses and gave him pleasure. Do not art and joy go together?

If you would learn and improve yourself and your work, analyse each picture that moves you. Ask yourself, not *what* is photographed, but *why?* Imagine the scene represented deprived of this or that effect of light or shadow or atmosphere, and then see what would be left. Probably very little to interest. It is not the actual objects in the scene and the interesting facts which surround them, but the feeling of pleasure and delight which certain effects of sunlight and air amongst them caused, which constitute a picture which will last. Art must not be confounded with education. Only remember that when you analyse a picture, and dissect it, so to speak, you are doing it for your own private improvement, and if the picture be a successful one, this was not its purpose nor its best mission. It should be sufficient to look *at* a picture, and not *through it*, and if the impression it gives is good and pleasing, it is enough and it cannot it is not desirable that it should—do more.

And now if this be true of pictorial productions generally, how far, or at least, I will say, how small a percentage of hand-camera pictures would stand the application or test; and yet if some can, why not all? It is not, however, given to everyone to be an artist or even to appreciate the truly artistic.

It is a master who has said, "It is no reproach to the most finished scholar or greatest gentleman in the land that he be absolutely without eye for painting or ear for music," he may prefer the popular print to the finest work of art; only "let him have the wit to say so, and not feel the admission a proof of inferiority." And if this state of things existed, and if everyone who happens to make successful photographs with camera—on stand or in hand matters not—would not imagine himself already an artist nor compelled to become one, he might make photographs in spare hours if so disposed and would hardly yearn for a club or society for the development of a thing which merely shared his play hours with other trifling occupations; and the man that with deliberate intention and right motive strives to use a hand-camera as another might use a sketch-book is also of quite a different nature to those who would band themselves together to advance the fortunes of a particular invention or instrument, so that little is left for a society of hand-camerists than to take rank amongst trade societies to promote the sale and commercial progress of the machines they affect, but let it not be done in the name of photography.

I have on previous occasions endeavoured to show that the scientific interests of photography are so divided that we have not one but three or four photographic sciences, to wit, chemistry, optics, and the like, and if each particular science takes what belongs to it, photography as a science ceases to have an existence, and as a mere craft, such as wood-turning and metal working, it does not satisfy the requirements of many who are photographers nor would it rightly comprise many of their works. Hence it is as an art, a minor and incomplete art if you like, but an art, or a means of artistic expression for all that, that it can claim a dignified independent existence. It must be this or nothing, and the user of a hand-camera, if used intelligently and with proper motive with definite aim and purpose, though his pictures be small—what matters the size?—has as much right to recognition as his fellow whose productions are ten times the size.

There should be a future for hand-camera work not yet imagined. Let us hope so at least, for the present, if we judge it from the generality of work one sees, is poor recompense for the outlay, the expenditure of money and time, which we know must be incured, nor is it at all worthy of the photography whose methods and formulæ it uses.

* * *

The Photographers' Benevolent Association.—Meeting held in the rooms of the London and Provincial Photographic Association, Thursday, April 20th, Mr. Robert Beckett in the chair. Two applications for assistance were considered by the committee. In one case loan of £5, together with a further sum in instalments, was granted. In the other case the committee instructed the secretary to refer the applicant, who was a foreigner, to the Consul of his own country, and to state that his case was one which the committee did not see their way to relieve. The Rev. H. G. Morgan and J. G. Hudson were accepted as subscribers, and Mr. Walter D. Welford was elected life governor. The secretary reported on the fact that the proceeds of the Sandell Exhibition had been devoted to the Benevolent, and announced that Mr. Sandell had expressed his willingness to loan the whole of the pictures from that exhibition and to supply a number of catalogues gratis to any provincial society that would organise an exhibition in its own town and give the proceeds to the Benevolent Association. The following subscriptions and donations were acknowledged:—Rev. H. G. Morgan, 5s.; Atticus, 10s. 6d.; *Photographic Review of Reviews* Charitable Fund, £2 2s.; Hastings and St. Leonards Photographic Society, £2 2s.; *Photography* Prize Competition, 6s.; J. G. Hudson, 15s.; Mr. T. Bedding, 10s. 6d.; and Mr. R. Hayward, 7s. 6d.

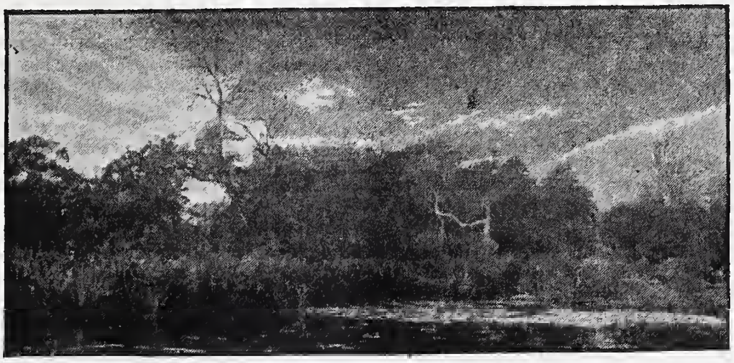
MONTHLY PRINT COMPETITION.

NO. 47.—HAND-CAMERA WORK.

WITH regard to the majority of the work sent in, we are sorry to say that too much of the pure snapshotting at anything and everything seems to be the main idea. Even in hand-camera work, we take it, artistic selection may be exercised. Another technical fault seems to be overprinting, with blocking up of the shadows, and then reducing by overtoning; in such a case the result is by no means happy. In many cases, too, upright lines are most fearfully distorted.

CLASS I.

Thomas, W. (London).—"Evening on an Essex Backwater." Wray's 5 by 4 rectilinear, *f*/11; 1-10th of a sec., October light, pretty good for time of day, after 4.45; Mawson's; cold-bath platinotype. "I was passing the scene of this little picture on the way home after a day's tramp sketching, and was struck with the difference in appearance since the morning. It was only wanting in a better sunset sky, and this being provided, the result is this picture. The dead reeds and rails on right hand were very light in colour, and gave plenty of contrast to the dull background." We commend the note by Mr. Thomas as a lesson to hand-camera workers; the result speaks for itself, though it suffers considerably in reproducing.



No. 1.] "Evening on an Essex Backwater." [*W. Thomas.*

SILVER MEDAL.

Spencer, H. (London).—"Early Morning at the Mouth of the Thames." Key hand-camera, *f*/8; about 1-25th of a sec., March, very bright light, with slight mist over the sea, ten o'clock; Edwards' iso., Solio squeegeed on ground glass, combined toning and fixing. We have here real atmosphere and mist, and the result is somewhat suggestive of one of Van Beer's Dutch pieces.

Dawes, W.—"Shades of Evening." This is an exceptionally bold attempt at a striking effect, and although it may be questionable as to whether the darkness of the foreground is in keeping with the brilliant spot of light in the sky, this is, we think, the effect, at the first glance, of such a scene on the eye.

Post, W. B. (New York City).—"Redondo Beach." Ross, *f*/16; inst., during April, good light, morning; Cremer platinotype, hot oxalate. A clever little study, but which would have been much improved by clouds.

Magrath, J. (Southport).—"A Pleasant Morning." Single, a 23s. 6d. detective camera, Griffiths', Birmingham, inst., elastic band, September 8th, 1891, sunny, but hazy, 11.30 a.m.; Ilford ordinary. Much over-printed, and not a pleasant tone; the detail in whites very strikingly rendered.

Crawford. J. (Dublin).—"Scots Greys." Ideal hand-camera, Laverne lens, *f*/11; snap shot, October 3rd, 1892, good light, 2.30 p.m.; Ilford rapid; Ilford P.O.P. A very good shot, with plenty of detail in shadows, but camera was not held straight.

Hunt, Charles (Surrey).—"Hokey Pokey Vendor, Brighton." R.R., *f*/16; 1-15th sec., September, 1892, goodlight, 1.30; Paget xxxxx, Aristotype, bicarbonate and gold. Over-printed and under-toned, otherwise good.

Fowler, T. H. (Brighton).—"Near Barcombe, Sussex." Wray's lens, *f*/16; 1-16th sec, March, bright sunlight, about twelve o'clock; Cadet's Lightning; platinum, cold bath. Wants clouds badly.

Wilson, T. E. C. (Liverpool).—"Three Generations." Clement and Gilmer's R.R., *f*/11; about 1-30th sec., Thornton-Pickard shutter, April, brilliant sunshine, noon; Red Label Ilford's; Ilford printing-out paper, sulpho-cyanide bath. A very good study.

Field, J. H. (London).—"Sunday Traders." Wray five-inch R.R., *f*/11; 1-16th sec., end of March, bright sunlight, noon; Ilford Red Label, Mezzotype (No. 2 surface); Powell's compressed platinum. Exquisitely soft and delicate, but spoilt by the leaning lines of the trees.

Lynam, G. (Stoke-upon-Trent).—"Dovedale." Rectilinear, *f*/22; May, good, 3 p.m.; Ilford Red Label; Ilford's P.O.P., matt-surface, sulpho-cyanide; taken with "Facile" hand-camera with own improvements. Only wants clouds to be a very good thing.

Potter, J. G. (Worthing).—"At Rest." Key camera and lens, *f*/14; shutter, September, diffused, cloudy, 1.30; Ilford Iso. P.O.P., sulpho-cyanide; cloudy and windy, no sun, negative taken across ditch, looking west, no finder used. Good clouds on negative, which would if printed in considerably improve the print. We should also have painted out the hideous derrick in the centre.

Fulljames, H. J. (Wimbledon).—"In the Meadows." Stereo Co. Artist hand-camera, *f*/16; July; Paget xxxxx. A very fine print, and run hard for a place.

CLASS II.

Macmillan, M.—"P. S. Galatea." Talmer hand-camera, Euryscope Anas., *f*/11; inst., last week in April, 1.30 p.m.; Thomas' E.R.; Ilford P.O.P., sulpho (bath recommended).

Pearce, D. T. (Cambridge).—"A Country Lane." Frank's 10s. 6d. Presto hand-camera, *f*/40; 3 sec., April 9th, 1893, weak sunlight, 2.30 p.m.; Ilford ordinary; Ilford P.O.P., sulpho-cyanide. Matt surfaced on ground glass. My first competition.

Wilson, R. H. (Kirkcaldy).—"Swans." Laverne's rapid detective, *f*/13; 1 30th of a sec., April 5th, 1893, bright sunshine, 3 p.m.; Ilford special rapid; platino.

Williamson, J. H. (Kirkcaldy).—"Nearing Home." Laverne's detective, *f*/11; about 1-30th of a sec., 1st April, 1893, diffused and hazy, 11 a.m.; Ilford Red Label; Eastman's Solio paper, borax and gold.

Harding, G. (Stourbridge).—"Ploughing." Cytox hand-camera, open aperture; shutter, April 4th, 1893, sunlight, 11.30; Ilford ordinary; Ilford P.O.P., sulpho-cyanide.

Daws, S. (Radford).—"Sneinton Market, Nottingham." Fallowfield's Facile lens, *f*/8; inst., March, sunshine, 2.40 p.m; Paget Prize, xxxxx.; Ilford P.O.P.

Prince, G. F. (Birkenhead).—"Orange Seller, George's Dock." Single, *f*/11; about 1-10th of a sec., March, 2 o'clock, sunlight; Paget Phœnix ordinary; Ilford P.O.P. Taken with Haigh's Turnstile hand-camera.

Gaine, R. L. (Sunderland).—"North Shields Ferry." Single, on Griffiths' Guinea camera, probably *f*/11; diffused and dull, 8.30 a.m.; Edwards's Inst. Iso.; film gel-chloride paper, Eastman's.

Roberts, Edith (Belmont).—"The Bathing Ghant, Benares, India." Optimus R.; Dec., bright sunshine, 9 a.m.; England's celluloid films; Aristotype paper, combined toning and fixing bath.

Hutton, Isobel (Lincoln).—"Jews' House, Steep Hill, Lincoln." Achromatic meniscus; inst.; matt-surface paper, ordinary gold.

Kirby, G. (Warrington).—"Rent Free." Taylor and Hobson's 5 in. Detective, *f*/16; 1-30th of a sec., April, strong sunlight, distant haze, 11 a.m.; Ilford special rapid; Ilford P.O.P., sulpho-cyanide of ammonia.

Dent, W. B. (Bridgwater).—"By the Pool." Wray, *f*/8; inst., Jan., hazy morning; Paget xxxxx; Ilford P.O.P., sulpho-cyanide.

CRAWFORD, F. (Dublin).—"Mermaid." Facile hand-camera, R.R. lens, f/16; about ½ sec., August, sunshine, noon; Paget xxxxx; Ilford P.O.P., Ilford formula.

GYLES, L. (Dublin).—"Outside Trinity College, Dublin, Waiting for a Fare." Lancaster's Omnigraph; summer, bright sunshine, about two o'clock; Eastman's Solio paper, borax.

RUCKES, E. G. (London).—"Waiting for the Steamer." Landscape, f/8; 1-20th of a sec., March, sunlight, 3 o'clock; Paget xxxxx; Ilford P.O.P. (matt-surface).

No. 2.] "Early Morning at the Mouth of the Thames." [H. R. Spencer.
BRONZE MEDAL.

EYRE, H. S. W. (Crowborough).—"Going over the Water Jump." R. R., f/10; inst., April, 3.30 p.m., sunshine; Solio, borax and gold.

HUGHES, G. W. (Seacombe).—"After the Storm" Single achromatic, f/9; inst., March 4th, fair, 8.45 a.m.; Ilford White Label; Eastman Solio paper.

ST. CLAIR, L. M. (London).—"Horses Feeding, Bergen." Lens and camera, Kodak No. 3 Junior, largest, said to be f/11; about 1-30th of a sec., August, sunshine, two p.m.; Eastman film; Solio.

ISAACSON, J. (Liverpool).—"A Collision on Sefton Park Lake, Liverpool." Eureka, f/11; 1-30th of a sec., April, bright afternoon, about 4 p.m.; Ilford ordinary.

HOLT, D. A. (Deansgate).—"A Pleasant Drive." Griffiths' Guinea hand-camera, about f/12; about 1-20th of a sec., March, 4 p.m.; Ilford Inst. Iso.; Ilford P.O.P.

TWEMLOW, S. P. (Sandbach).—"A Circus Procession." Lancaster's quarter-plate single Inst., f/10; snap-shot, March, bright, 1.30; Ilford medium Iso.; Eastman's Solio, sulpho-cyanide.

HAWKINS, G. (London).—"On Hastings Beach." Single landscape, by Crouch, f/16; about 1-8th sec., August, fair, 11.30 a.m.; Paget xxx; Platinum, cold bath.

LASHBROOK, A. (London).—"The Fishery near Uxbridge." Optimus R.R. 5 by 4, f/16; 1-15th of a sec., March, very bright, 2 p.m.; Paget xxx; Eastman's Solio paper; combined bath.

PERKS, W G. (Walthamstow).—"A Rest." Beck R.R., f/11; 1-4th sec. (about), February, good light, 12 o'clock; Edwards's Iso. film; Solio.

VULLIAMY, E. P. (Glasbury).—"Vessels leaving Dock." Wray, f/8; shutter, May, dull, late afternoon; Thomas'; Ilford P.O.P.

LOMAS, H. M. (Minehead).—"Waiting for the Otter Hounds." Facile R.R., f/11; shutter exposure, June, sunlight, about 9.10 a.m.; Castle plate; Platino paper.

TILY, E. (London).—"Where sloping Meadows stretch away." Optimus Euryscope, f/11; 1-30th of a second, March, good light, morning; Cadett; Ilford P.O.P., sulpho-cyanide.

PREEDY, D. H. W. (King's Norton).—"A Rest on the Journey." Griffiths' Guinea Camera, f/32; about 1-20th of a sec., April 4th, 1893, sunlight, 3 p.m.; Ilford ordinary isochromatic; Solio; Powell's compressed.

SALTER, J. H. (Oxford)—"The Beach, Hastings." Beck's Autograph; 1-24th of a sec., March, sunshine, afternoon; Edward's Iso. films; P.O.P., sulpho-cyanide amm. Taken by a Frena camera.

DEAN, G. H. (Dukinfield).—"Stop the Swing, Jack." Optimus 7 by 5 W.A. (on quarter-plate), f/11; about 1-25th of a sec., July, 6 p.m., yellow sunlight; Edwards's Iso. (instantaneous); gelatino-chloride combined. Taken in a home-made hand-camera with Thornton-Pickard shutter.

CHAMPNESS, A. J. (Surrey).—"Thames by Southwark Bridge." Wray R. R., f/11; 1-45th of a sec., March, fairly good light, dull sky, 2.30 p.m.; Cadett Lightning; Eastman's Solio, sulpho-cyanide of amm.

ROE, H. C. (Nottingham).—"A Cottage at Wilford, Notts." Fallowfield's Facile hand-camera, f/8; inst., March, sunlight, 3.30 p.m.; Paget's Prize plate xxxxx; Ilford P.O.P.

Dry Plate Making at Home.

BY R. CHILD BAYLEY.

IN order that no one should be deterred from making dry plates by the thought that to do so successfully requires specially designed apparatus or even the exclusive use of a dark-room, a list of the few articles really required, together with some information how those not easily obtainable can be improvised, shall be the first consideration.

Primarily as to a dark-room. No room exclusively reserved for the occasion is necessary, although of course such is a convenience; still, as the different operations can be carried out on two or three successive evenings in a room temporarily darkened for the purpose, a regular dark-room can be dispensed with. Many amateurs who possess dark-rooms will find that, however convenient they may be for developing, etc., when it is a question of plate making a larger room would be more suitable. In most houses the best place for the operation will be found to be the scullery, especially if it be provided with one of those flat-topped gas stoves which are getting common. Whatever room be selected it should have ample table accommodation, say not less than 20 square feet; a supply of water should be handy, and it should above all things be free from dust. This is where the scullery will be found to be advantageous on account of its tiled or brick floor and prevailing dampness.

The question of illumination depends entirely on the kind of emulsion which it is proposed to make. That which we shall describe in detail hereafter can be made in a fair amount of orange light, if due precaution be observed. Two thicknesses of good orange fabric will answer the purpose, provided artificial light be employed, which should be the case.

No. 3.] "Shades of Evening." [W. Dawes.
CERTIFICATE.

Some form of drying cupboard will be necessary, unless the room and the passage approaching it can be made and kept perfectly dark for a day or two, in which case the plates can be simply stood up in a rack, as far apart as possible, to dry like developed negatives. A drying box is, however, a convenience, and it is not difficult for anyone whose fingers are not all thumbs to make one which shall answer every purpose. The adjoined sketch shows, somewhat diagrammatically, one which will answer every purpose, and which is easily constructed. The air enters at A at an opening which should go the whole depth of the box; BB are two shelves which act as a trap and prevent light getting into the box and fogging the plates; CC are sheets of perforated zinc, one of which forms the bottom of the box proper, and the other helps to distribute the draught over the whole area of the box. At D is fixed an elbow to which by means of a nipple is screwed a tee-piece; these should be of wrought-iron of the size known as 1½ in. *gas*; the tee-piece terminates upwards in a piece of sheet-iron pipe about 2 to 3 feet long, while beneath its lower opening is placed a bunsen or other burner which is turned low and serves to create a draught. Below the perforated zinc which forms the false bottom, the front of the box should be closed in permanently, the other part being accessible by means of the door, E, which should fit closely, the entrance of any light being prevented by a rabbet. The whole of the interior of the box and light traps should have a coat of spirit varnish diluted with methylated spirit (or undiluted negative varnish will answer very well), to which some vegetable black has been added. A convenient size for a drying box is one 15 in. high from top to bottom, 12 in. wide, and 12 in. deep; as far as drying powers go, however, the bigger the better.

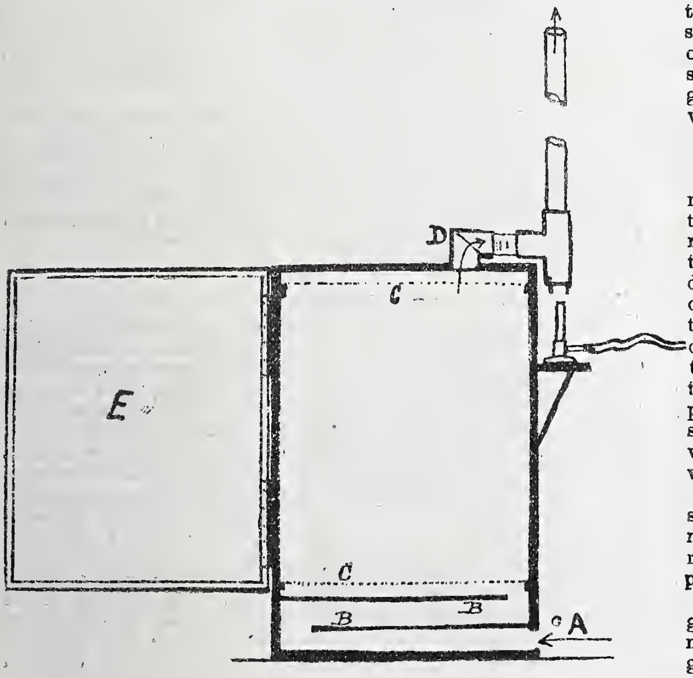


Fig. 1.

Drying Box for Plates.

The plates are stood up in the usual drying racks for negatives, taking care that they are at least an inch apart; and the racks carefully slipped inside, the door closed and the gas lighted and turned down low. If the box is in a warm room, and the plates are not too close together, they will be dry in about 18 to 24 hours, which time should not be exceeded. Long drying gives rise to frilling, owing to the tension which occurs between the moist and the dry portions of the plates.

In addition to the drying box there will be required—

A slab of slate or plate glass.
A piece of canvas about two feet square and a cambric handkerchief.
A chemical thermometer.
A glass funnel about 5 in. in diameter.
Two 10 oz. beakers.
Two test tubes.
A basin about a foot in diameter.
A 2 oz. and minim measure.
A pint or larger bottle and a *new* tight-fitting cork.
A saucepan *with a lid* to hold the bottle (a coffee pot with a bent spout answers well).
Two or three stirring rods.
Scales and weights.
A small milk jug, to hold about 5 oz.
A pneumatic holder is a convenience.

The plate glass should be about 3 ft. by 1 ft., and as a scratched piece answers as well as any, it can generally be obtained about three-eighths of an inch thick for eighteen pence, or a piece of slate ground true for the same money. It should be supported on the heads of three screws, which should be screwed into the table, or into a board about the size of the glass, for about half their length. The glass should then be placed on the screws and levelled by screwing one or other of them until a spirit level placed in any direction upon the glass indicates that it is perfectly level.

The canvas should have very open meshes. It can be bought at most shops where wools are sold, since it is of the kind used for making worked slippers, etc.; before use it should be well washed.

The bottle should have a loop of string tied to its neck, so that it can be hung in the coffee pot or saucepan about an inch from the bottom. It is a matter of convenience, should a gas stove with an oven not be accessible, to have a metal funnel jacket to fit the funnel mentioned above. These can be readily obtained at any chemical warehouse, or in default the glass funnel can be securely fixed in a metal one about half an inch larger all over, by means of a cork at the small end, so that the space between the two can be filled with hot water. The other articles mentioned require no comment.

Before making an emulsion it is best to get the plates which may be required cleaned and ready for use. For this purpose, should they be old negatives with any of the film left on, they should be soaked for twenty-four hours in a ten per cent. mixture of nitric or hydrochloric acid and water, then thoroughly cleaned with a scrubbing brush and well rinsed before treating as below. If new glass, which is much to be preferred, they need only be well rubbed with a rag dipped in the following:—

Caustic potash...	1 dram
Water	1 oz.
Methylated spirit	1 dram

rinsed under the tap two or three times, and stood up to dry where they will be free from dust. On no account should any attempt be made to polish them; care, moreover, should be taken to see that the potash solution is all well washed off before they are allowed to dry. It should be borne in mind that there is no more fruitful cause of defects in the plates, and none more easily prevented by the exercise of a little time and elbow grease at the outset, than a dirty glass. The edges of the plates, which are the parts most likely to get passed over in cleaning, should be particularly looked to, that they are free from specks of emulsion, etc. A large number of plates can be cleaned together, as they are easily preserved in that state by simply packing them closely together, the faces in contact with each other, nothing being placed between them, and then wrapping them up, say in two dozen lots, in clean paper.

It is a good plan, and will be found to facilitate coating very considerably, if the plates are slightly warmed before using, but care must be taken that they are not too hot. The right temperature is reached when they have just lost the cold touch that glass usually possesses.

Many people prefer to use a substratum, that is to say to coat the glass first with some substance to which the gelatine will adhere more tenaciously than to the surface of the glass itself; but if the glass is properly cleaned, the gelatine selected of a suitable quality, and the drying has taken place in the proper time, this will not be necessary. A substratum will always be found to "drag" when coating with emulsion, that is, the latter will not flow freely over the surface of the plate.

There remains but one other caution to be made, before proceeding to describe the actual manufacture of the emulsion itself, and that is as regards dirt. Not only should the glasses and bottles used be perfectly clean, but it should be looked to that the hands are so likewise, the thermometer bulb should be washed, the bench or tables should be examined for spilt hypo, pyro, or any other of the many photographic substances which would ruin an emulsion if they found their way into it, and a supply of pieces of glazed note paper should be provided to lay in the scale pans before weighing.

(*To be continued.*)

* * *

The Boston Camera Club have sent us a very neat little souvenir and description of their club premises, illustrated by process blocks of the same, and various pictures of the leading workers. The whole reflects great credit on its compiler, Mr. Benjamin Kimball.

The prints sent into the competition of photos coloured with Bruns's Glossy Colours are on show at the Crystal Palace, and several of them are very artistically coloured.

The "Camera" has now made its reappearance, with Photographic Answers, and a collotype supplement, and all for one penny. We are pleased to welcome it back again to life after its long Rip Van Winkle sleep. It is published by Morland and Co., 17, Farringdon Street, E.C.

Determination of Plate Speeds.

A REPLY TO MR. WILLIAMS.

BY ALEXANDER COWAN.*

HAVING had the opportunity of seeing Mr. Williams's paper in print, I venture the following remarks.

The first point that strikes me is where he says, "Such was the courage of my own opinions that I offered to submit everything to a disinterested jury;" and he then says, "To this challenge none of my dissentients have responded." In reply to this, I must remind him that a week previous to this the firm I have the honour to represent invited Mr. Williams and any committee of experts to practically test the matter at their works at Southgate, where every means is at hand to fully investigate the matter, but that, up to the present time, he had not availed himself of the offer.

Next Mr. Williams says, "For reasons best known to themselves, certain manufacturers have thought fit to adopt the system introduced by Messrs Hurter and Driffield." All I can say in reply to this is that, for ourselves, the reason we adopted it was that, after exhaustive trials, we were compelled to admit that it was practically far and away the best method we were able to find for estimating the speed of plates, and after some thousands of trials we are more than ever convinced that we were right in taking the matter up and giving to the public the rapidity exactly as we found it of each batch of plates.

That we may have made some mistakes is quite possible, but I think if they had been very grievous ones we should certainly have heard about them soon enough; but I am sure that, if such has been the case, they have been quite accidental and only incidental to the difficulty of at once perfectly mastering a rather delicate operation.

Mr. Williams in the beginning of another paragraph says "Judging from the tone of the correspondence, one might imagine I had sat down with the deliberate intention of demolishing the Hurter and Driffield theory." Now, I think. if Mr. Williams will refer to the opening paragraph in his original paper, he must really see that he did give some occasion for this idea, for his words were, "So one event in photographic history has been the complete discrediting of the results shown by the Warnerke sensitometer, and we shall probably not have long to wait before we see a similar fiasco." But I am glad to see that he concludes the paragraph in the present paper with, "As a matter of fact, I had no such idea."

In connection with the paragraphs marked *a* and *b*, all I can say is this, such is my confidence in the Hurter and Driffield principle that, if plates we mark do not answer to the relative speed number marked, it is we that have, as Mr. Williams puts it, "blundered," but that the "system is right." And members of this Society know how often, from time to time, I have shown the results that fully bear out this contention, that the system is right.

With regard to the isochromatic portion of the paper, I submit that it would have been better not to have imported it into this discussion at all, as it is certainly a subject that requires separate attention.

Mr. Williams, in his concluding paragraph, quotes Mr. Andrew Pringle's article, alluding to Messrs. Hurter and Driffield as saying, "If they mean that, after all, we can materially control our practical results by controlling the developer and the following operations, then no more need be said; but, with their writings before us, we must say that it is by no means clear what they do mean in the matter." Now I really think that if their original paper is carefully read, it will be found that they have been very careful to express what they really did mean.

They first began by asking the question, "What is a perfect negative?" and defining it as being, "mathematically, the true inverse of the original when the opacities of its gradations are proportional to the light reflected by those parts of the original which they represent."

Again, they say "their experiments conclusively show that the only control the photographer has over the development lies in deciding whether he will reach that limit or not."

"That the length of time of development does not affect the ratio of densities among themselves, but increases every density by proportional amounts."

"That during the period of under-exposure the amount of silver reduced is directly proportional to the exposure."

"That during the period of correct representation the densities are proportional to the logarithms of the exposures."

So that a negative can only be theoretically perfect by "carefully adjusting the time to the intensity of the light, that the exposures may fall within that period of correct representation."

"That thickly coated plates give a very much greater latitude of exposure."

This I take to mean, in the matter of over-exposure.

"That thinly coated plates, on the other hand, need very accurately timed exposures.

"And lastly, that, when the inertia of the plate is known, it is possible to time the exposures in the camera so that the densities of the gradations are almost exactly proportional to the light intensities which produced them."

After these quotations, it can scarcely be fairly said that "it is by no means clear what they do mean in the matter."

I was very pleased to find, on referring to this leader in *Photography*, quoted above by Mr. Williams, that in the sentence immediately preceding it Mr. Andrew Pringle says: We have, from the first, applauded and valued the investigations of Messrs. Hurter and Driffield, and it is possible that we are at one with them; in fact, of late we have begun to think we are at one.

There is only one other point that occurred in the discussion that I should like to make a remark upon, and that was Mr. Williams' remark that you could not be sure of getting the same speed number of a batch at different times. In answer to that, I can only say that I have reproduced the same number at various times from pieces of the same plate (seven times), extending over a period of eight months with the greatest error of four per cent.

In conclusion, I should like to read to you part of a letter I received on Saturday from a member of this Society, at whose request I had tested five different plates and films which were unknown to me.

He wrote: No. 5 is one of the sample plates you sent me some time ago. In this case the Hurter and Driffield number on the box tallies *exactly* with the one now given me, viz., 75. This goes far to prove that your method of testing is accurate, as, of course, you could not know that No. 5 was your own plate. When I get back into the civilised world I must come to you to see how you do this testing, as it certainly seems the truest that I know of.

Mr. Ashley Cowan read the following remarks on the subject:—In Mr. Williams's original paper he mentions that, "when the unreliability of Warnerke's sensitometer became apparent, our plate-makers quickly relinquished the issue of plates bearing any actinometer or sensitometer number, and a pretty general return set in to using the old nomenclature, such as ordinary, medium, instantaneous, drop-shutters, etc." And Mr. Williams further remarks that the description given to their plates by makers of good brands is such as probably fulfils all present requirements; the name fairly indicates the speed, and in the absence of any reliable method is actually preferable to misleading numbers. Now, I think that Mr. Williams, if he always made his exposures according to these names only, would find himself more at sea than if he went by these numbers; for to suppose that plates issued as ordinary or special, or whatever title it may be, by different makers, should of necessity be of the same speed, is out of the question, and, as has been the case this last year, where plates of even the same brands have been probably nearly doubled in speed. It is rather surprising that Mr. Williams (who in the commencement of his original paper) regrets that in photography we have no apparatus for the nicety of measurements such as we have in kindred sciences, should be content to judge his results in an unscientific manner when he can have at his command a system based on scientific principles, and which has taken years of patient thought and experimenting to build up and give as it was freely to the world for the advancement of the science of photography. The fact that the conclusions arrived at by Messrs. Hurter and Driffield are at variance with the ideas of Mr. Williams and other photographers does not of necessity in any way invalidate their system, any more than the old idea that the earth was flat and did not in the least alter the fact that it was round all the time. And I hope in the same way we shall have Mr. Williams, when he has gone more carefully into Messrs. Hurter and Driffield's system, and worked it out for himself with the proper instruments, that he will find that there is more in the principle than he at present thinks. Mr. Williams, I suppose, will admit that for every plate exposed, on whatever subject, there must be within the limits of the plate and the subject some correct exposure, and I should think he would admit that the more data that can be given to enable the operator to correctly judge that exposure the more nearly will his result approach perfection. Mr. Williams took objection to Messrs. Hurter and Driffield's photometer, and said that he found that he could not read the same with precision within two or three degrees. Claiming perhaps to have made as many readings with this instrument as anyone, I must emphatically say that, if readings cannot be made within five per cent. of error, it is the fault of the operator, and not the instrument; only, of course, it cannot be expected that the first time anyone reads with an instrument of this sort that they can at once master all the technical difficulties that have to be contended with, any more than if we set a novice to weighing in a chemical balance, and expect him to do it off correctly at once. Mr. Williams will, I should think, admit that when a new system is brought out, and a system which requires a certain amount of experience to work, it is not to be expected that, at the first go-off, everything is to be perfect. It must of necessity be a work of time to find out and rectify any little difficulties that may be met with, and, if any errors have occurred at the outset, they are surely not sufficient evidence to bring forward against the system itself. Mr. Wilson mentioned that he thought Messrs. Hurter and Driffield's system was correct, within certain limits, but that development and temperature might affect the result. It was for this very reason we recognised the necessity that all who used this system should work with a developer of fixed proportions for a fixed time and at a fixed temperature, and we hope to be able in time to give a numerical value corresponding to alterations in development and temperature. But it must be understood that those who use this system and wish to work to the same standard of speed should carry out all their tests under precisely the same conditions. Dr. Hurter at the Camera Club very ably expressed in the form of an equation the different factors which governed the negative or, as he expressed it, R the result.

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* Read before the London and Provincial Photographic Association.

$$R = I,\ L,\ T\ (S)\ D,\ t',\ \phi.$$

He shows that R, the result, is governed by the following factors:

First, the I or intensity of the light;
T, time of action of that light;
L, lens which reduced it on to the plate.
These for simplicity we may call (E) or exposure. Then we have the speed of the plate (S):—
(D), development;
(t'), time of development;
ϕ, temperature of development.
∴ We have an equation,

$$R = E,\ (S),\ D,\ t,\ \phi;$$

So that here we see Messrs. Hurter and Driffield do admit there is a control of the negative.

From this equation we know that, keeping all conditions the same, our result, R, must be the same.

And therefore, to get always the same value for S, the speed of the plate, we must keep the remaining factors constant. Then, when we know the speed of the plate, we can find what alterations we can get in R, our result, when we vary either E, D, t, or ϕ. So that here we have a very valuable stepping-stone to enable us to estimate the value by different alterations in development, temperature, etc., what we certainly did not have, before Messrs. Hurter and Driffield gave their valuable discovery to the world.

Naturalistic Photography.

By P. H. Emerson, M.A., M.B. (Cantab).

(*Continued from page* 253.)

And now we will return to the main subject, which I shall lay before you in a series of *propositions only*, for psychology has not yet become a science in *the true sense;* psychological work is merely in the working hypothesis stage, though by no means at the worked out hypothesis end.

Proposition I.—That the material universe may be regarded by us as eternal (though varying in aspects), and the fountain-head of all our *sensuous* impressions.

Proposition II.—That accepting the doctrine of evolution the mind has evolved from the merest crude sensations of the amœba to the complex and subtle sensations of the master artists of to-day.

Proposition III.—That in the course of this evolution there arose the sensation and perception of the beautiful,* and this emotion was followed by acts intended for ornamentation of their persons or homes.

Proposition IV.—That from this germ developed the sense of the beautiful until in civilised man this appreciation of the beautiful may be divided into three steps:—

1. That of sensation.
2. That of perception (intellectual).
3. That of emotion.

That these three be distinct processes, yet are they one—indissoluble.

Proposition V.—That the appreciation of the beautiful is thus *subjective*, an ideal existing in the minds of men in varying degrees of development; and that though Nature (by which the objective world is meant) has probably produced at various times exquisite harmonies, it took man to recognise these as beautiful, and so it has been said the artist is the master of Nature.

Proposition VI.—That as the nervous system developed, these appreciations became more delicate and subtle, and so a man with a naturally delicate sense of vision gradually purges himself of the coarser emotions, and his perceptions are more purely cerebral acts. A master artist regards first of all by mere *acquaintance* the decorative harmony of a picture or natural scene, *then* by previously acquired knowledge he *knows* why it is lovely, fit, true in sentiment, and *distingue*, and that knowledge gives way to the emotion of joy, which is expressed physically by his smiling face.

That the *reverse* is the process with the Philistine; the crude and tawdry appeals first to his emotion, hence the popularity of the sentimental subject; of the anecdote; of "literature in the flat."

Proposition VII.—That we have psychological proof that men's sensitiveness varies in degrees of fineness; thus a *virtuoso* in flour knows samples grown in different countries by their feel—a *virtuoso* in wine knows a glass of port taken from near the bottom from one taken from the top of a bottle; and the blind Laura Bridgeman knew purely *by touch* the clothes of all the inmates of a workhouse. From which it is self-evident that in all persons the boundary of their appreciation is hard drawn; in some cases therefore fatally limited by their very organisation. A man whose vision is not delicate can *never see* the delicacies of line, colour, and tone patent to a more delicate nervous organisation. Such a limited person is for ever doomed to be outside the pale of the pictorial art world, as the man with no ear for music is for ever doomed to be an "outsider" in the musical world.

Proposition VIII.—That as the sense of beauty is a human ideal, this ideal will vary with individuals and *in* the individual from day to day, nay, from hour to hour. Indeed, so complex are the brain processes, and so dependent upon each other, that an artist may begin a picture with one ideal and finish it with quite a different ideal. Indeed, it is one of the great difficulties of the artist to keep steadily to his original ideal throughout the work. A glass of wine, a santonine powder, may completely change his ideal or power of execution. From which it is plain how delicate a thing is a work of art, how thoroughly *personal* is every touch in a work worthy the name of art—what a perfect index of a creator's mind.

Proposition IX.—That the ideal existing in any given brain at any moment is a complex and refined essence, the result of the man's whole previous life up to date; wherefore this ideal is no mere reflection of Nature, but a result of imagination, or the selection from various ideals or parts of ideals; and thus man may go beyond Nature and conceive things that do not exist in the world—such as the vase, the phonograph.

That fine art is the artistic expression of this ideal by a *personal* method, and that no man is an *artist* who has the ideal and can see the beautiful if he have not the power of execution as well. Art is therefore achievement. By their *results* alone are artists to be judged; as thus a very inferior *technician* may be a very delicate seer of the beautiful, but the world rightly only gives him credit for his picture—*his result*—and if that be poor, if his hand cannot express his ideal, he does not rank highly nor often does he get credit as a seer. "Art is therefore with the man," as Mr. Whistler has said.

Proposition X.—That Nature sometimes sings in tune, or succeeds in producing glorious and exquisite harmonies, harmonies fully appreciated by the seers of the beautiful, for many more may appreciate than can depict; hence the rarity of real artists. Whence also a layman may be a far keener seer than most painters; but seer *and* masterly executant is Genius itself.

Again, that the harmonies of Nature are altogether different from the harmonies of art—are dependent on different phenomena, and that Nature and art are different worlds. That Nature sometimes sings in tune Mr. Whistler himself has allowed, but I submit that it is absolutely impossible to reproduce that harmony on a plane surface; it is a thing by itself, a thing apart; though a number of unphilosophical painters *think* they do reproduce nature—but they do not. Here is a very simple proof suggested to me by my friend Mr. Havard Thomas, a sculptor. Let the observer look at a distant landscape behind some reed-stalks in the foreground. The reed-stalks in Nature under certain conditions do not blot out *any* of the background; *we see round them*, and see the *whole* landscape beyond. In art the reed-stalks would always *blot out* part of the background. I think our sense of the third dimension of space or "distance" arose first through this peculiarity of vision. For further and deeper proof of the utter impossibility of *reproducing* Nature as we see her I must in a brief paper like the present refer you to Professor Helmholtz's "Scientific Lectures," to Mr. Rood's "Chromatics," and to our "Perspective Drawing and Vision." A careful study of these publications, aided by a few experiments made for himself, will convince the veriest neophyte that it is *impossible* to reproduce Nature or make a "mere transcript."

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* According to Darwin this is a fact first noticeable in birds.

PROPOSITION XI.—That in photography we are confronted with a new phenomenon, in that we find some of the results of a *machine* give true pleasure to master artists which has never hitherto been the case with machine-made works.

PROPOSITION XII.—That photography is not art because a machine comes between the man's ideal and Nature, and the result is *machine-made:* the trapping of a sunbeam. Say the photographer, like the painter, goes to Nature with certain ideals—we will for illustration's sake assume that two men have exactly similar ideals of the beautiful (which is of course impossible). They go together to Nature, and find a beautiful natural harmony in a lovely stretch of purple sands by the sounding sea. The photographer at once sets up his machine, focusses, and exposes; but in these very processes *his* ideal has *gone*. What results *may* be beautiful, but it is no more the representation of his ideal, the vision he first saw. It is something else, for the machine imposes certain conditions, which were never in the photographer's mind at all. How often has the most experienced of us been disappointed with the photograph of what was fine in Nature—fine to our eyes, that is, and sometimes *vice versa?*

The painter, on the other hand, begins, and if he be an expert each touch helps to his desired or ideal end; this wavelet is delicately put in, that breaker strongly and broadly, and so on; everything is done unto one end, and all is certain from the first—whereas the photographer has boxed a maimed and contracted reflection of what he saw. True it may be a beautiful reflection, but after all it is *Nature's drawing*, and not the man's. Still, such machine-made pictures may in certain cases satisfy, or rather harmonize with the photographer's ideal of beauty, or indeed with the master painter's, as does a beautiful natural landscape; and yet again the beautiful photograph is not *art* any more than the natural scene of which it is a reflection.

PROPOSITION XIII.—That though the machine draws the photograph, yet in the production of a photograph there are a few (very few) very limited *incalculable* elements as there are in organ grinding and engine driving.

These are—

(1) Selection of view.
(2) ,, lens.
(3) ,, focus.
(4) ,, developer.
(5) ,, printing method.

These limited incalculable elements give a man a very limited opportunity of blending his materials to his ideal, and though by taking advantage of these *with knowledge* he may surpass other photographers in decorative work, still they are too limited for him to express to any degree of certainty or fulness *his ideal*, and since the drawing is mechanical, these few very limited incalculable elements cannot enable a man to express his ideal in anything like the same degree as does a personal art. Indeed, photography is not nearly so *personal* an art as sailing or rifle shooting, both of which have very little of the mechanical about them and much of the personal.

In photography man puts the machine under certain physical conditions, and the machine will always (under these same conditions) bring about the same result, therefore the process is logically mechanical. On the other hand, a personal art is one in which the results would differ again and again under the same physical conditions, for the *mind* would work differently on each so-called "replica" of the original—*no artist could paint two pictures exactly alike.* A photographer might take fifty views of a subject exactly similar, from which it is self-evident that photographs are not works of art in the sense accepted by artists, though photography may be an art or craft in the old sense of the word art, as surgery is an art; but such a use of the word "art" as applied to photography would not satisfy the *dilettanti*, for the word used so would include *every* photographer as an artist, which is not what the ambitious amateur means at all.

PROPOSITION XIV.—That therefore it would be wiser for all photographers to drop the use of the words "art" and "artist" in connection with photography (photography is a science, or hopes to be some day), and classify exhibition works as:—

(1) Decorative or Pictorial (when the *intention* is merely and purely to produce a beautiful thing).
(2) Scientific (accurate mathematical reflections).

By using the terms "decorative or pictorial photographs" and "scientific photographs" we should, I think, allay all opposition from artists—not to say painters and critics (who are right in refusing to call photographs works of art), and should be at the same time working in a less pretentious way and in a legitimate pursuit, humble as compared with painting, 'tis true, though the best rules surpasses all but the masterpieces of art in beauty. And I would suggest that this Society sets the example at their forthcoming Exhibition and divides the works submitted into two classes, scientific and "decorative or pictorial;" for works should be classed according to their intention.

PROPOSITION XV.—That decorative photographs are worth doing (if done well) because they give us certain beautiful qualities art cannot give, hence their *raison d'etre*; that the producers of such may prove themselves as keen seers (not artists) of the beautiful as the master artists themselves. They may have art-knowledge too, yet if they be no creators by personal method I submit they are not "artists." But then this does not mean, on the other hand, that mediocre draughtsmen whose vision is vulgar or obtuse are to crow over these seeing photographers, for such mediocrities are not "artists" and, indeed, seeing photographers have far more claim to the title, as the masters would allow.

PROPOSITION XVI.—That though photographs are sometimes more beautiful than art, they never equal Nature when she sings in tune. Indeed, I submit that when Nature "sings in harmony" she is more beautiful than photography or art, unrivalled in her delicacy, fineness, and distinction.

PROPOSITION XVII.—That "idealism" and "impressionism," if used in connection with photography, are mere contradictions of terms, and used by slovens in thought—or worse.

Gentlemen, let us conspire *not* to be called by any false or vain names such as "artists," but to produce beautiful decorative work, each of us in his own way. Let us in friendly and unselfish spirit band together for the furtherance of this end, and let the too eager or ambitious (I will not say vain) neophyte remember that the proof of his delicacy of vision is in a measure what he shows us *of his own* and that as there are few Laura Bridgemans with perfect touch so there are few seers of the most delicate beauties, because few organisms have delicate vision. Let the neophyte and others remember that the seers of the beautiful are as rare as the limners of beautiful scenes; that physiology proves that most are for ever fatally limited to remain *without*, and no disgrace either, if such have but the honesty and pluck to own it; the disgrace is pretentiousness and imposture: in *pretending* to see.

Amongst these blind have been the vast body of persons who have ridiculed Mr. Whistler; indeed, nearly the whole press has ridiculed him; and yet, gentlemen, to-day his pictures hang in the most honourable position in Paris, the city at present the Queen of the Arts, and so it will always be, for I for one believe that truth is great and will in the end prevail over obtuseness and dishonesty, for I am optimist enough to think the majority of men are fair-minded, honest, and manly, and that though they may for a time let the rogue and the cad live their little days they will in the end arise and put their houses in order and turn the unclean from their temples.

As for these propositions, gentlemen, I do not intend to fight over them, for they are *propositions*, and therefore no fighting matter, but provisional until psychology shall either prove or disprove them.

I offer to you frankly and trust you will deem them worthy your consideration, after which I leave you to accept or reject them, as your honest judgment dictates. At any rate, they may prove interesting to some of you, at least I hope so, for they are an attempt on my part to solve what has long been a vexed question, a problem to which no satisfactory or *rational* solution has hitherto been offered.

Photogravure: or, Photographic Etching on Copper.

BY MR. DENISON.

Preparing the Copperplate.—Continuing from the point we reached last week; having, by means of the trial resist, ascertained what is the correct exposure and made a second exposure with a piece of standard brown tissue behind the transparency or positive, taking care that the tissue has been cut accurately, with right-angled corners, a quarter of an inch larger each way than the transparency mask-opening, and has been placed on the transparency so that the print will be made exactly in the middle of the piece of tissue, the next step is to prepare a copperplate for its reception.

Copperplates can be obtained ready polished from Messrs. Hughes and Kimber, of West Harding Street, or from Mr. A Nichols, of 22, Cyrus Street, Clerkenwell, and no doubt from many other firms.

The plates when received should have a perfect surface, and be quite free from scratches or other blemishes, and if they are in any way imperfect they should be returned to the makers, as it is a matter of great difficulty, without special appliances and considerable experience, to remove blemishes and obtain again a proper surface upon a copperplate.

It is as well to state, when ordering, that the plates are required for photogravure and that the plates must be perfect in polish. It is well also to order the plates to be sent with bevelled edges, as, although it adds a trifle to the cost (which is lost in the case of a spoilt plate) still it avoids the risk of a good plate being scratched in bevelling the edges afterwards.

The plate, then, being free from defects, all that is necessary is to clean it, freeing it from grease or anything else which might cause the etching to proceed irregularly.

To do this, lay a piece of clean paper, larger than the copperplate, upon the table, lay the plate on it face upwards and rub the surface with a plug of cotton wool moistened with a solution of American potash (the strength is immaterial, but it should not be strong enough to tarnish the plate). When all signs of greasiness have disappeared rinse off the potash under the tap and rub with another plug of cotton wool moistened with weak nitric acid (about 1 part acid to 3 parts water), rinse again, and with a third plug of wool go over the surface with washed whiting moistened with a 5 per cent. solution of ammonia.

Washed whiting can be purchased ready for use or can be easily prepared by mixing ordinary household whiting with water, allowing the coarser particles to settle for a few minutes and then decanting the water off into another vessel and allowing the finer particles held in suspension in the water to settle; the water can then be poured off and the whiting dried and stored.

A small shallow pot, such as one buys tooth powder in, is useful for keeping a small quantity of the whiting in, ready mixed with the ammonia.

After the final treatment with whiting the plate should be rinsed and dried, and if the plate is perfectly clean the water should run off it quite regularly. It is as well to give the final rinse in hot water, as the warmth facilitates the drying of the plate. The cloth used for drying must be perfectly clean.

Laying the Ground.—We are now ready for laying the bitumen ground. This is done in a box which I will describe to you. (You will see it on the table, and so be able to follow my description.)

The size of the box depends upon the size of plate to be dusted; the one before you measures 12 inches square at the base and 18 inches in height; this is large enough for any plate up to 10 inches square. Through the bottom of the box wire nails are driven from the outside, so that the points stick up inside the box to a uniform height of one inch; the nails are an inch apart and cover a space about six inches square, and they serve the purpose of a rest for the plate out of the way of the bitumen dust which will lie at the bottom of the box. A piece of wire netting fixed at the same height from the bottom will answer the same purpose. Another very good plan, adopted by my friend (and to-night my assistant) Mr. Wilmer, is to make a little stand of two pieces of wood in the form of a cross which can be put into the box with the plate upon it.

The inside of the box should be lined with glazed paper, as there is then less danger of coarse particles of dust clinging to the top and sides and falling down upon the plate at inconvenient times. There is a door at the bottom of the front which allows of the insertion of a plate, and the box is suspended on pivots so that it can be readily revolved.

In this box about half a pint of finely powdered bitumen is placed and the box is revolved some twenty times or until a dust is raised inside, and then brought to a stand with the door at the bottom. There is a little peg at the side to keep the box steady. The door is opened and the plate is laid upon the nails face upwards; the door is closed and after the lapse of from three to ten minutes the plate is taken out. It will be found to be covered with a layer of bitumen in very small particles.

The degree of fineness of the grain is governed by the class of picture to be reproduced, the more delicate the subject the finer the grain. A dark subject requires not only a large quantity of grain, but requires that grain to be somewhat coarse in character. It will be readily understood that one has considerable control over the quality of the grain. It can be varied either by allowing the dust in the box to settle for a longer or shorter time before insertion of the plate or by leaving the plate in the box for a longer time, or by inserting the plate a second time after again revolving the box. In the first case if the dust is allowed to settle for a considerable period—say two minutes—all the coarser particles will have subsided, and only the very finest will be still held in suspension, and if on examination of the plate the quantity of dust is found to be insufficient, the box can be revolved once more, and the plate inserted after a rest of two minutes, when a further quantity of the same class of dust will be found deposited on the plate. For ordinary subjects with a normal amount of light and shade I have found the most suitable grain is obtained by allowing the dust to settle for from half to one minute and then leaving in the plate for ten minutes. In this way one gets a deposit of rather coarse dust during the first minute or two after insertion, and this is followed by a deposit of finer throughout the rest of the time. This mixture of coarse and fine dust I have found to answer very well. No doubt many ways of modifying the character of the grain will suggest themselves to you from these remarks.

In the early days of my work in this process I had considerable difficulty with the grounding of the plates, owing to the deposit being irregular; sometimes the deposit by its form reminded one of those experiments—common at conversaziones—a flat plate of steel sprinkled with sand, the sand arranging itself in varying patterns according to the vibration produced by drawing a violin bow along the edge of the plate. From this similarity I imagined that the uneven deposit of grain was the result of vibration, but I could not satisfy myself that such was indeed the case, because, upon laying the plate upon the nails with a pad of blotting paper beneath to stop the vibration I occasionally still got the same irregular deposit. I came to the conclusion eventually that the irregularity was caused, perhaps, partially by vibration, but also partially by a certain dampness of the dust which caused the particles, perhaps, to attract one another, and so fall on the plate unevenly. Whatever might have been the cause, I have found that the difficulty has been almost entirely overcome by keeping the box containing the dust in a perfectly dry state, and so I call your attention to the importance of providing against dampness either in the dust or in the box. I may mention one remedy for unevenness of deposit in case any of you should meet with it; I found that if I placed the copper to be grounded in the middle of another plate considerably larger, the unevenness generally disappears; the uneven portion of the grain was always near the edge of the plate, and when this method was adopted the uneven deposit fell upon the under plate instead of on the plate being grounded.

When a satisfactory grain has been deposited upon the plate (and this can be ascertained by examination with a magnifying glass) the next step is to fix that ground to the copper. To accomplish this we require an article known in the trade as a copperplate heater; it consists of a plate of iron about a quarter of an inch thick, somewhat larger than the plate to be heated; this is separated at its four corners on iron legs, and underneath the plate is a piece of gas pipe in ring form perforated to form a stove. This special piece of apparatus is not absolutely necessary but it is very convenient. A makeshift heater can be made by placing a similar plate of iron upon an ordinary circular gas stove; in fact, I have used this myself for a considerable time. The gas is lit under the heater, and when the plate has got hot all over, the copperplate is laid upon the sheet of paper, the ends of which have been turned up, beyond the copperplate so as to allow of the plate being lifted up and the copper is then placed with the paper beneath it upon the heater and watched closely till the ground is observed first to become transparent and shortly afterwards to turn a darker colour and show an appearance of bloom upon the surface which is difficult to explain, but when once seen will easily afterwards be recognised. The plate must now be removed from the heat and allowed to cool spontaneously. If the plate is not heated sufficiently, then the ground has not attached itself, and therefore will offer no resistance to the mordant in etching the plate. And where the plate has been heated too much or kept hot too long the particles will run together and either prevent the mordant acting at all or will protect the copper in large dots instead of minute ones. In practice the important thing to observe is that the dust is properly attached to the plate, and this can be tested by applying a camel's hair brush to one corner after the plate has cooled, and then examining the plate with the glass to see if any dust has been removed; the running together of the particles can only occur through carelessness. It is very convenient to ground several plates on the same evening, and I think the work is better done as one gets familiar with the work; when cold, the plates can be labelled on the back with particulars of the time given, etc., and be stored in a grooved box or be put away simply wrapped in a few thicknesses of tissue paper.

Development of the Resist.—Last week I described to you the mode of printing the carbon resist which has to be developed on the copper, and we developed a trial resist upon an opal plate in order to judge if the exposure had been correct. The trial print having been found correct a second print is made having the usual safe edge. One of the developing dishes is filled with clean cold water and the grounded copperplate is immersed therein face upwards; the exposed tissue is also immersed in the water, taking care to remove all air bubbles, and when the inward curve of the tissue, which will appear on immersion, is seen to relax, the tissue is quickly arranged face downwards upon the copperplate in the desired position. The copperplate, with the tissue attached, is removed from the water and laid upon the squeegeeing board and squeegeed in both directions, beginning from the middle of the tissue (this is for the purpose of expelling any air or water from between tissue and plate). The plate, with the tissue attached, is now laid face downwards upon a pad of blotting paper and allowed to remain for about ten minutes to give the tissue an opportunity of attaching itself to the plate. After the lapse of ten minutes the tissue is ready for development in the same way as I described last week; the plate is immersed in water at 95 deg. Fahr., until the pigment is seen to ooze out from under the paper backing, and the paper is then raised from the pigment by inserting a finger-nail under one corner and gently lifting the paper up. (This is, of course, done under water.) The pigment is now gently laved with the water, until all the soluble gelatine has been washed away; adding, as may be necessary, a further quantity of hot water, or, if the developing dish is over a gas stove, turning on more heat. When development is complete (and if the exposure has been correct, this may be judged by the deepest shadows of the picture being represented by only the thinnest film of gelatine) the plate is removed from the developing dish and cooled by immersion in cold water.

The resist is now dried by flooding with methylated spirit, beginning with a mixture of half water and half spirit, and gradually adding spirit till all the water has been removed from the film. When the film is dry the margin of the copper must be protected with black varnish, taking care not to encroach upon the picture. The best way is first of all to draw a line all round, and just upon the edge of, the picture with a draughtsman's ruling pen charged with the black varnish, using for a ruler a steel straight-edge. As the gelatine film is very tender, great care must be exercised to prevent injury to it in ruling, therefore it is as well to support the ruler above the plate by allowing it to rest at each end upon a plate somewhat thicker than the copper being ruled; the back of the plate and the edges must also be protected with varnish, and when the varnish is dry the plate is ready for the etching bath.

The film of gelatine is very susceptible to change of temperature or dryness of the air, and it is as well to avoid leaving the plate after development in a warm room. I have had many films cracked completely off the plate by bringing the plate out of a cool room into a moderately warm one. This danger can be completely avoided by flooding the plate after all moisture has been expelled with a mixture of glycerine and methylated spirit in the proportions of one part of glycerine to twenty of spirit; but the use of glycerine for this purpose brings in another evil which is almost as bad as the one it is meant to cure. The glycerine is very difficult of removal from the margin of the plate, and I have found that if any trace of it is left upon the plate, the varnish does not afford protection against the mordant, and after the plate is finished the margin of the copper requires repolishing. Another effect of the glycerine is to make the gelatine film more pervious to the mordant. In fact, the moisture of the glycerine keeps the film in a more or less spongy, and therefore porous state, as well as by diluting to a certain extent the mordant, enabling the latter to penetrate the film more easily. I do not consider this an objection, except that, if it is only used occasionally, it introduces an element of uncertainty, so that one cannot rely so absolutely upon getting the exact effect desired; so that I prefer, except during very hot weather, to trust to avoiding the stripping of the film by keeping the plate, between development and etching, in a cool room. There is no opportunity, or at least I have found none, of retouching upon the resist except to the extent of stopping any pinholes with a fine sable brush and black varnish, and of course whenever a spot of varnish covers a portion of the plate, in the finished print that spot will be represented by a white mark, so that spotting is to be avoided as much as possible. The only other method of retouching which I have tried is by increasing the thickness of the film is by painting it over in places with a solution of bichromated gelatine; and this is such a very delicate operation that I consider it unsatisfactory; and, moreover, the plate must always be exposed to the light to render the gelatine insoluble.

Etching the Plate.—The plate is now ready for etching, and I will give you a list of the etching solutions to be employed; they are five in number, and consist of solutions (in water) of perchloride of iron of different strengths.

No. 1 should be made to register on Baume's scale 45°; the percentage of perchloride in this solution is 47, and the specific gravity is 1444.

No. 2.—40°, percentage 41, specific gravity 1375.
No. 3.—38°, „ 38, „ 1339.
No. 4.—35°, „ 35, „ 1313.
No. 5.—27°, „ 27, „ 1225.

The solutions are given in the order in which they are to be applied to the plate, and it will be observed that No. 1 is the strongest. A peculiar feature about the action of the mordant through the resist is that the stronger the solution the less penetrating power it has. A solution at 45° will only penetrate the thinnest film of gelatine, while a solution of 27° will penetrate almost any thickness, and I take this to be the result of two causes; first, the tanning action of the perchloride upon gelatine, which renders the film more or less impenetrable, and secondly the viscidity of the solution itself.

The principle, then, upon which the etching is conducted is that No. 1 solution will penetrate and etch the deepest shadows of the picture, which will of course be covered by the thinnest film. No. 2 will attack the plate through that portion of the film which is next thinnest, and so on until No. 5 solution is weak enough to penetrate the thickest film which represents the high lights of the picture, and complete the etching of the plate. It requires some experience to decide exactly how long each solution shall be allowed to work before the plate is transferred to the next weaker, but a good guide is to allow each solution to operate until the darkening of the copper (which is the evidence of the etching) ceases to spread to a thicker portion of the film. When this occurs it is known that the particular solution in use has reached a portion of the film the thickness of which bars its further progress, and the plate should then be transferred to the next solution. Of course, you will understand that the action of each solution, after the first, is cumulative, the portions of the plate attacked by No. 1 solution will be also etched by each of the four succeeding solutions, and the action of No. 2 solution, and indeed of each solution, will be continued by each succeeding one. In the dark portions of the picture the danger is that in biting to the necessary depth the bitumen ground may be undermined by the mordant and so the grain be destroyed. This is due to the lateral as well as vertical action of the mordant. The place attacked by it being increased in width as well as in depth. What one really requires is to have a ground abundant in quantity and of a coarser nature in the portions of the picture to be deeply etched, so as to make allowance for part of the grain being lost through the lateral action of the mordant; but the difficulties of obtaining a ground which shall differ in character in one place from that in another are very great, but it is the one part of the process which is in need of improvement. I may say that for some time past Mr. Wilmer and I have been experimenting with a view to obtaining what I may term a "selective" grain, and our experiments so far have been very encouraging, but they are so far incomplete that I don't feel at liberty to lay them before you on the present occasion. The etching as a rule will take from eight to twelve minutes according to the character of the picture. The times will be something as follows:—

No. 1, one minute.
No. 2, two or three minutes.
No. 3, about three minutes.
No. 4, about two or three minutes: and
No. 5, until the highest lights of the picture have been discoloured by the mordant and from half a minute to a minute longer.

It is quite impossible to tell beforehand the length of time that the plate will require to remain in a given solution, except No. 1 solution; it depends so very much upon the hygrometric state of the atmosphere at the time and the depth to which the resist has been printed. This is a matter for experience, but with the remarks I have made upon it, and by having regard to the rule as to changing the solution immediately the action of the preceding solution ceases, you should have no difficulty in producing a plate that will yield a print. With regard to solution No. 1 (45°), generally speaking, it is not advisable to allow it to act for more than a minute, otherwise the shadows print too black and the true gradation of the negative is lost.

Now a word as to making up the etching solutions. The most convenient way is to put about 7 lb. of perchloride of iron (the solid, not the solution) into a large glass bottle with a wide mouth, and pour boiling water upon it sufficient to cover it; after standing for some time with an occasional stir the perchloride will be dissolved. The liquid can be drawn off, after settling, with a syphon without getting any of the sediment which will be found at the bottom of the bottle.

With reference to watching the effect of the etching; if the resist printed on standard brown tissue has been printed to a depth only just sufficient to give the details in the shadows, no difficulty should be experienced in watching the darkening of the copper beneath it. There is, however, another tissue which the Autotype Company specially prepare for photogravure work, in which the pigment is of a bright transparent red. My experience with this tissue is somewhat limited, and I do not, as yet, feel justified in recommending it to you as superior to the standard brown; but the ease with which the progress of the etching can be watched is very greatly in its favour, and if the tissue is suitable in other respects (and as the Autotype Company prepare it for this special purpose I have no reason to doubt that it is not entirely suitable) it will soon supersede standard brown entirely.

(*To be continued.*)

Exhibitions.

Society.	Entries close.	Opens.	Closes.	Address of Secretary.
National Photographic Exhibition, Crystal Palace ...	—	April 10	April 29	
Philadelphia (U.S.A.) Phot. Society	Mar. 15	April 17	April 29	Robt. S. Redfield, chairman, Exhibition Com., 1,601, Callowhill St., Philadelphia, U.S.A.
National Sportsman's Exhibition (Photo. Apparatus Section).	—	April 24	May 6	Royal Aquarium, Westminster.
Forfar, N.B.	—	May 15	—	W. J. Anckorn, West Port, Arbroath, N.B

In our report of the Bolton Exhibition it was stated that "H. Hall" was one of the judges. This should have been H. Holt.

In our review of the Crystal Palace Exhibition, the print referred to as "Down the Thames," by Mr. Chas. Job, is, we find, not by him but by another member of the Hove Camera Club. Our apologies are due to Mr. Job for ascribing this work to him.

Societies' Notes.

Oxford University Photographic Club. — The officers for this term are: Hon. President, A. McMullen, Balliol; Hon. Treasurer, J. Walker, M.A., Christ Church; Hon. Secretary, A. Eglington, Lincoln; Committee, Hon. G. L. Parsons, Balliol; Assist. Secretary, A. H. C. James, Merton, H. Graves, Balliol.

* * *

The Borough of Tynemouth Camera Club was instituted in February, and held its first field-day on Good Friday, and the second on Saturday last. The officers for the ensuing year are:—President, Frank Gray, North Shields; Vice-President, J. Knowles Gordon, North Shields; Council, F. Gray, J. K. Gordon, E. Godfrey, J. A. Tait, J. Blyth, A. Surtees, and Wm. S. Irvin; Hon. Sec. and Treasurer, Wm. S. Irvin, Bedford House, North Shields. Ordinary meetings will be held during the months of October to March, on the first and third Tuesdays. The ordinary membership is limited to eighteen; the honorary membership being unlimited. Those wishing to become members should apply at once.

* * *

The Dundee Amateur Photographic Association has come to an untimely end through lack of interest by the members, and failure to secure suitable premises as a studio. Some of the members have joined the Dundee and E. Scotland Photographic Association.

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The Aberdeenshire Amateur Photographic Society has removed from 35a, Union Street to 431, Union Street, Aberdeen, where more commodious premises have been obtained, and where they have a dark-room open to the use of visitors on previous application to the Secretary, Mr. G. Brodie.

Societies' Meetings.

Accrington.—On the 17th inst. the 1891 American slides were exhibited before a large number of members and friends, and were much admired. At the close of the meeting, Mr. Dunkerly, of Burnley, exhibited his patent collapsible pocket camera (adapted for hand or tripod), which was minutely examined and generally admired. It was also announced that the President and Vice-Presidents are offering gold, silver, and bronze medals, also money prizes, for the best photographs taken during the club outings, etc., this summer.

Ashton-under-Lyne.—On 22nd seventy ladies and gentlemen had their first ramble of the season to Marple. They were met at the station by Mr. Joel Wainwright, a resident, who conducted the party through private grounds to some of the oldest buildings and most beautiful scenery for which Marple is noted. He made the ramble very interesting by his description of the places of historic interest, interspersed with much humour and poetic language. The party took a great number of views, and finally finished up the afternoon, by Mr. Wainwright's kind invitation, at his residence, "Finchwood," where he had provided tea and other refreshments on the lawn. After partaking of these good things the party were photographed in front of the house.

Birmingham.—Ordinary meeting on the 18th inst., Mr. G. F. Lyndon in the chair. Five new members were elected. A splendid set of slides, kindly lent by the Cheltenham Society, were shown and very much appreciated. Especially fine were a series of interiors of Gloucester Cathedral, beautifully chosen and splendidly executed. A number of hand-camera seaside studies were also very good.

Brixton.—A meeting was held on the 18th inst., Dr. J. Reynolds, President, in the chair. An interesting lecture was given by Mr. T. C. Hepworth, F.C.S., on "Photography Applied to Journalism." The lecturer thoroughly and fully described the processes in use in the offices of our leading illustrated journals for producing stereotype and other blocks, etc., from which the impressions are taken. Copies of the earliest papers, and of the illustrations which used to appear therein, proved very interesting. The specimens of the old-fashioned "broadsides" caused much amusement. Mr. Hepworth explained that in the earlier days the same block was used over and over again, to represent events occurring at different times, on account of their costliness. He contrasted the early productions with the modern triumphs of illustrated journalism, and fully described the production of the *Daily Graphic* newspaper from the entry of the roll of paper to the issue of the paper printed, cut, and folded. The method of drawing, photographing, electrotyping, stereotyping, woodcutting, production of zinc plates, etc., were each in their turn described. Lantern illustrations were freely used, and the lecture, which was listened to with close attention, concluded with a picture of some of the artists on the staff of the paper. The club subsequently decided to affiliate with the Photographic Society of Great Britain. A show case of lens fittings, kindly lent by Messrs. Taylor and Hobson, interested the members during a portion of the evening. Photographers residing in the neighbourhood are earnestly requested to join the club. Full particulars can be obtained from Mr. B. E. Pinder (the Hon. Secretary), 7, M'Dowall Road, Camberwell, S.E.

Croydon (Camera Club.)—Wednesday, 19th inst., debate, "What is the Best System of Judging?" opened by the President. After an animated discussion the general opinion expressed was that the mark system was the best. The medals gained at the exhibition were presented to Messrs. H. E. Holland and G. R. White.

Derby.—The usual meeting was held on 11th inst., Mr. A. B. Hamilton occupying the chair. As this was the final meeting of the season there was an unusually large attendance of members and friends, including a number of ladies. Messrs. R. Keene and T. A. Scotton (Hon. Secretary) were elected as delegates on the affiliation of P. S. G. B. Messrs. W. Glen, J. Chawner, and J. Sandoz were elected members. The question of the out-door summer meetings was next brought forward, the committee having arranged for two medals (silver and bronze) to be offered in competition for the best pictures taken at these excursions by amateurs. It was also thought desirable to commence a series of outings on Wednesday afternoons for the benefit of those members who could not attend on Saturdays. The first outing of the season will take place on May 6th, the places selected being Coxbench and Duffield, Mr. G, Walker to act as leader. Mr. R. Keene was then called upon to give a paper entitled "A Six Days' Photographic Tour through Derbyshire." This tour took place between twenty and thirty years ago, when photography was very different from what it is at the present day, the party having to take with them a huge cart, with rope attachment, and which they had great difficulty in pulling about from place to place. Commencing at Rowsley (where the Midland Railway then terminated), the route taken was by Baslow, Eyam, Hathersage, Castleton, Miller's Dale, and back to the starting-place. Mr. Keene had to illustrate his paper 170 lantern slides, most of which had been taken on this excursion. These were very beautiful examples of his work.

Eastbourne.—Ordinary meeting, April 19th, "Photography" Prize Slides were shown by the aid of Mr. Sparrow's oxy-hydro lantern. Mrs. F. Clark's and Mr. Carpenter's slides much admired. Sample plates were handed round by the Secretary, which had been kindly sent by the Imperial Dry Plate Co.

Gosport.—On 18th inst. Mr. T. E. Williams, Vice-President, in the chair., an interesting paper on "Experiences of a Kodak with Continuous Films," was contributed by Mr. R. E. Froude. The paper was full of practical hints, and was much appreciated by a good attendance of members.

Hackney.—Ordinary meeting held on the 18th inst., Mr. J. O. Grant in the chair. The Hon. Secretary invited members of the society to join the new Central Club. Mr. T. J. Jones was nominated for membership. From the question box: How to intensify an under-developed hydroquinone negative? Mr. S. Beckett said use acidified mercury chloride, followed by cyanide of silver and potassium. The chairman said he would use mercury chloride, followed by ammonia; had not found negative fade. How to strip a film without enlarging? The Hon. Secretary thought alum would prevent expansion after stripping. Mr. R. Beckett suggested methylated spirit. Work was shown by Messrs. S. J. Beckett, R. Beckett, Sodeau, T. H. Smith, Moore, Perry, Nunn, Dean, and Cross. Owing to some discussion having ensued at the previous meeting respecting the power of getting density with amidol, Mr. Sodeau was called upon to demonstrate that density was easily obtainable. The Hon. Secretary had requested some negatives to be brought up, having received varying exposures, unknown to Mr. Sodeau, and the latter, with amidol used dry, and 20 per cent. sulphite soda solution, speedily and successfully obtained plenty of density. He said, in over-exposure he would use more amidol, advocated the use of citrate soda (20 per cent. solution), half drachm to the ounce.

Lincoln.—The first annual meeting was held on the 14th inst. The officers elected for the ensuing year are:—President, the Rev. Dr. Stott; Vice-President, Mr. H. Mantle; Hon. Treasurer, Captain J. M. Warrener; Committee, the Rev. Canon Fowler, and Messrs. J. W. Horton, C. P. Hayward, J. T. Birkbeck, W. E. Asquith, R. Slingsby, C. C. Smith, H. Death, J. Markham, and J. Stuart; Hon. Secretary, G. Wade, 22, Dane's Terrace, Lincoln. The club consists of about fifty-six members, and is to be congratulated upon being affiliated to the School of Science and Art, and upon having a home in the premises of the school. The commencement of the club's proceedings was marked by a photographic exhibition held, by kind permission, in the School of Science and Art. For the initiative of this exhibition the club are indebted to Mr. R. Slingsby. The treasurer's account shows a balance in hand of £5 13s 6d., which is very pleasing, considering the club has only been in existence about twelve months, and that the first year is necessarily one of some initial expense.

Margate. — The members met on the 18th inst., when Mr. Webster, of Claremont, gave a demonstration on "Enlargements," showing specimens of his own production, and explained in very lucid terms the whole process, from the taking of the negative to the mounted enlargement, four times its original size. The specimens included landscapes, groups, and portraits, all equally deserving of praise. The paper used by the lecturer was Eastman's bromide, requiring an exposure of about three minutes, and developed by ferrous oxalate, any deposit being removed by a weak acid bath. He advised fresh hypo solution and a more thorough washing than is usually necessary, to *both* sides of the paper. The apparatus used was his camera reversed (the negative occupying the place of focussing screen), placed against a window, with light reflected from a white board, and an ordinary box used for support to the bromide paper. These results were all the more interesting from the fact that they were purely amateur, and all difficulties had had to be met and overcome without resort to professional aid. The summer outings were mentioned, but nothing was decided, nor dates fixed, except to accept Mr. Tweedie's kind invitation for July or August to his country retreat at Puckstone—an opportunity to ramble about Fordwich and neighbourhood.

North Middlesex.—An interesting meeting was held on the 24th inst., when Mr. J. Matthews read a paper on "Retouching," dealing with the subject not so much from the technical side as from the art point of view. He exhibited on the screen a number of slides from untouched negatives, and went fully into their defects, showing how a high light should be strengthened here, a shadow toned down there, and an unpleasant impression modified in another place, and then showing another slide from the same negative, after retouching, from which the practical value of the hints given could be seen. He stated, incidentally, that he preferred Faber's pencil to work with, and found he could do all he required with Nos. 2 and 3. He also went fully into the subject of matt-varnishing and colouring on the back. The award for the best picture taken at Strand-on-the-Green was gained by Mr. H. Smith, and that for Waltham Abbey by Mr. S E. Wall. The next meeting will be on May 8th, when a demonstration of the Carbon process will be given by the Autotype Company. Visitors are welcome.

Oban.—A meeting was held 21st inst. Mr. M. A. Scott, President, in the chair. The rules, as drawn up by Committee, were approved of and ordered to be printed. Arrangements are being made for an exhibit of members' work in the photographic section of industrial and fine arts exhibition to be held at Oban in November. Excursions to places of photographic interest in the vicinity are to be made during the summer months. The President gave an interesting account of some novelties he had seen on a recent visit to London, several of which were shown.

Putney.—At the ordinary meeting held, Mr. H. Faulkner in the chair, Mr. S. Herbert Fry delivered a lecture on the "Sandell Plate." Mr. Fry said it would not be necessary to take up the time of the meeting by demonstrating the development, as the process presented no special features as compared with any ordinary plate. The Sandell plates were made of two kinds, the General and the Especial, the former having two films, the latter three; each film was of a different speed, the slowest being nearest the glass in each case. For most purposes the General would meet all requirements, the Especial was necessary only for very difficult subjects, such as dark interiors with windows opening in a bright light, where the shadows would require exposures hundreds of times longer than the best lighted parts. In manufacture the glass plates are first coated with an extremely thin film of the slower emulsion, which is allowed to become quite dry before the rapid films are added, each in turn being allowed to dry before the next is applied. The films were thus not in chemical or even mechanical contact with each other. Mr. Fry explained that the action of the films would be as follows: The rapid film would receive the first impression of the image through the lens; in case of prolonged exposure this film might be correctly exposed for the deepest shadows, and more or less over-exposed for the other parts; the developed film would therefore show full detail and correct density for the shadows, the other parts would show the usual symptoms of over-exposure, being practically clear glass in the highest lights. Now, as regards the second film, each being very thin, the light will penetrate the first and act on the second, and the latter being slower will probably be about correctly exposed for the half tones. On development the shadows would be found to be nearly clear, and the sky probably somewhat lacking in density. To the third film somewhat less light will have penetrated, and being slower than the others all parts of the surface except the high lights will be under-exposed, and therefore develop up more or less as clear glass, whereas the high lights will have full density. When the three films are now considered as a whole it will be found that the resulting negative will have full detail in the shadows, due to the first film being backed in these places by the clear glass of the second and third; the second film will give detail and density in the half tones, the first helping it as regards detail, and the third as to density in case of it having been perhaps a little over-exposed. The third film will give the required density to the high lights, the first and second having lost most of it owing to over-exposure, but will, on the other hand, retain detail. Obviously the two extremes to be guarded against are exposures so short that the first film is not sufficiently acted upon, or so excessively long that even the last film is over-exposed. The first contingency is the most likely to happen, although it is claimed for the plates that they are as rapid as any on the market. Over-exposure is almost impossible, as the latitude with the triple and even with the double film is simply enormous. As an example it was mentioned in the course of the discussion which followed the lecture that three plates had been exposed by a member of the society, on the same subject, one receiving 1-20th, the other 1, and the third 20 sec. exposure, the range being 400. The three plates were developed in the *same* developer, and gave very presentable negatives. Mr. Fry stated that by modifying the developer even this remarkable range might be exceeded without materially affecting the resulting negatives. It might at first sight appear that there would be little or no advantage in using these plates for very short exposures, as probably only the rapid outer film might be brought into action; this was, however, not the case, as the entire absence of halation gave a roundness and vigour to the image which could not be obtained by any other plate to the same degree, even when backed in the most effective manner. In order to take full advantage of the qualities of the plates, it was in contemplation to use so rapid an outer film as could not possibly be worked on any ordinary plate, as such a film could not by itself be made to give the necessary density by any known developer, the difficulty of obtaining density being at present the obstacle which limits the speed of plates coated with only one emulsion. Mr. Fry gave the formula sent out with the plates, and remarked that they also appeared to work very well with others in general use. The particular formula had certain advantages, among others that it did not soil the hands; it was well worth a trial, and he urged its adoption. The development did not present any special features; it might with advantage be carried on tentatively, starting with a somewhat weak developer and increasing the strength as required; by this method the top film was kept free from fog, and progress could be more readily judged. If the developer happened to be too active, the image on the first film might flash up and fog over, as usual with over-exposure, but this by no means meant that the negative would be a thin or poor one. Development should be proceeded with until the necessary density was obtained, and this could be judged by transmitted light in the usual way, and the worst that would be found to have happened would be that the outer film might be slightly veiled over, but this would not affect the printing qualities of the negative in any other way than slightly retarding the operation. It was necessary to use a strong fixing bath; 8 oz. of hypo to the pint of water was recommended. Mr. Fry exhibited specimen prints and some of the negatives from which they were taken, both General and Especial, and they fully bore out the claims made; the interiors, many of which were taken under extremely trying conditions, were entirely free from every trace of halation, full detail was given in the deepest shadows and highest lights, and the half tones and gradation were excellent; there were also a roundness and relief which are too often absent from prints from ordinary negatives. Snap-shots showing people and animals in rapid motion, yachting, wave studies and scenes from the seaside full of life and animation, clearly showed the capacity of the plates as regards speed; their sharpness proved beyond argument that the shutter had been used at a very high velocity, and their technical excellence was a tribute to the high character of the other qualities of these plates.

Richmond.—On 10th inst., the President's paper on "Architectural Photography" having been unavoidably postponed, an interesting discussion took place on the subject of films. Several members gave their experience and various appliances were shown for facilitating the manipulation of cut films. On the 17th inst. the subject was "Photographic Apparatus," the treatment of which took the practical form of a show of cameras and accessories, and as no two members happened to bring the same article, a varied display was the result. Amongst others, Mr. Davis showed a Ross's Divided hand-camera, Mr. Ardaseer a Zoka, and the original pattern of Lancaster's Instantograph, interesting as showing the changes which have since been made; Mr. Thompson Shew's Eclipse and Universal; Mr. Ramsay the Vesta; Mr. Harris a Ross's 12 by 10, and Mr. Ennis a Roberts' hand-camera.

South London.—Ordinary meeting 17th inst., Mr. H. G. Banks (Vice-President) in the chair. Mr. Moss reported that in using Mr. Warnerke's developer for gelatino-chloride paper he found that xylonite dishes were dissolved by the acid, and at the same time discoloured the pictures. Mr. H. G. Banks exhibited a number of slides illustrating the scenery on the Pennsylvania Railway. Mr. John A. Hodges (President of the West London Photographic Society) gave a lantern exhibition.

Tooting.—Committee and ordinary meetings held on the 14th April, Mr. Anderson (President) in the chair. The report of the Sub-Committee *re* headquarters was read to the general Committee, and after some discussion it was decided to submit the matter to the ordinary meeting, which was done, and after being thoroughly debated, the report was unanimously adopted. So that, within a week or two, as soon as the necessary alterations can be completed, the club will be in exclusive possession of a large meeting room capable of holding 100 persons, a good-sized dark-room, and a corridor fitted with shelving, and containing plenty of room for lockers. An adjoining flat roof will also be found useful for printing and camera work, as likewise the meeting room itself (being exceptionally well lighted). The rooms will be at the service of the members at all times. The same Sub-Committee, viz., Messrs. Beckett, Child, and Dollery, were asked and undertook to carry out all the necessary arrangements. Messrs. Alexander, Buchanan, C. Sorrell, and Nock were elected active members, and Messrs. Fraser, Mellhuish, Morden, and Newman honorary members, making a total of eight new members for that night. Mr. Dollery was then called upon to give his demonstration upon "Cresco Fylma," but owing to the lateness of the hour he was only able to give a description of the process.

Ulster and Belfast.—A combined meeting was held on 17th inst., Mr. Brown (Vice-President, Ulster Society) in the chair. The evening was principally devoted to hand-cameras and a discussion on same. Among those exhibited by members were Shew's Eclipse, Kodak, Swinden and Earp's, Optimus, Rouch, and others. Film and glass negatives, with prints taken by them, were carefully examined, and useful hints and information obtained. The enlargement competition instituted by the Ulster Society brought out some good work, the following members getting placed:—Mr. J. McCleery, Dr Shaw, and Miss Kertland, the latter having two figure studies beautifully finished in water colours, which were much admired. The Camera Club monthly competition resulted in Mr. A. George being placed first in prints, and Mr. J. Woodside first in lantern slides.

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SOCIETIES' FIXTURES.

April 27—Oldham.—Lecture on "Our Summer Rambles, 1892, Mr. I. Chadwick.
„ 27—Leigh.—Arranging the Summer Excursions.
„ 27—Liverpool.—Monthly Meeting. Lantern Lecture by Mr. E. M. Tunstall, "Picturesque Holland."
„ 27—Dublin (Y.M.C.A.). — "Printing Methods," by Mr. L Davidson.
„ 27—London and Provincial.—"Stripping Gelatine Plates for Collotype Work," W. J. Rawlings.
„ 28—Croydon.—Technical evening.
„ 28—Cardiff.—"Professional and Amateur," T. Forrest.
„ 29—Rochester (Nat.). —Exhibition of 1892 Prize Slides ("A. P.").
„ 29—Huddersfield. — Microscopic Conversazione. "Observations on the Diatomaceæ," by F. W. Mills, F.R.M.S.
„ 29—Leytonstone (Camera Club).—Excursion to Theydon Bois. Leader, Mr. H. E. Farmer.
„ 29—Bristol (Camera Soc.).—Excursion to Cheddar Cliffs.
„ 29—W. Kent.—Excursion to Wrotham and Ightham. Leader, S. W. Joy.
May 1—Richmond.—Lantern Evening.
„ 1—N. Surrey.—Annual Dinner.
„ 1—Kensington and Bayswater.—The "A. P." 1892 Prize Slides.
„ 2—Gosport.—Demonstration on "Amidol."
„ 2—Bolton.—"Stereo Transparencies," Mr. C. K. Dalton.
„ 3—Eastbourne.—Demonstration on the Fərna, with slides pictures, etc., obtained with same.
„ 4—Aston.—"Practical Development," Mr. A. C. Townsend.
„ 4—Harringay.—Development.
„ 4—London and Provincial. — Technical Lecture, "Developers," by E. J. Wall.
„ 4—Bristol (Camera Society).—Excursion to Clutton and Hallatrow.

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To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

Rules.

1. Write clearly and distinctly on one side of the paper only.

2. Write each Query or Answer on a separate sheet of paper.

3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.

4. All matters for these columns MUST be received by TUESDAY MORNING'S Post.

5. The Editor does not undertake to answer Questions by post.

QUERIES.

6051. **Sulphite in Toning.**—Why is sulphite of soda recommended to be used in the fixing bath for Solio prints?—Fritz.

6052. **Wembley Park.**—Are there any restrictions as to photographing in Wembley Park?—B.

6053. **Hand-camera.**—Has any reader used either the Zoka or Meteor hand-camera, and can they recommend either for lantern-slide work?—Fritz.

6054. **Mounting P.O.P.**—Will someone kindly tell me the best way to mount P.O.P.? I generally, after washing the prints, lay them one on the top of the other on a piece of glass, and leave them to dry all night, but when I begin to mount them next morning I find they stick so, to each other, and also to the glass. Can anyone kindly tell me a better way to mount them, as I like to get as glossy a surface as I can?—Lucy F.

6055. **Hand-camera.**—Can any reader give me instructions how to make sheaths for hand-camera, also how to make a plate changer for above camera. I want the camera to hold about twelve plates.—J. H. W.

6056. **Group.**—I intend to take some school children in August, using R.R. lens, Ilford ordinary plates; what stop shall I use, and exposure, as I am a beginner? Any information will oblige.—E. M.

6057. **Montrose.**—If any experienced reader can give me particulars of the views and items of interest at Montrose I will feel obliged.—Regent.

6058. **Blacking Slides.**—My metal dark slides have got scratched and in some parts are quite bright, how can I reblack?—Glade.

6059. **Distilled Water.**—Which is the best way of getting distilled water for use in photography?—C. Prime.

6060. **Fog.**—I have ten negatives slightly fogged through, I believe, using too strong light while developing; can I remove it?—A. T. C.

6061. **Caermarthen.**—What views are there to be had at Caermarthen? I should like to know the principal items of interest there, if any of your readers will oblige.—Quis.

6062. **Colchester.**—Can anyone tell me if there is a good photographic dealer in Colchester, where plates and chemicals can be got? Any particulars will oblige. —A. B. K.

ANSWERS.

5979. **Developer.**—A few drops of solution of caustic potash or soda would probably act as an accelerator.—EDITOR.

5980 **Toning.**—If the paper is not washed free from silver and acid first, the toning is slow; our experience is that it will tone.—EDITOR.

5987. **Single Fluid Transparent Negative Developer for Dry Plates.**—Probably a hydroquinone developer which could be made by dissolving, as suggested by Balagny—

Sodium sulphite	40 gr.
Distilled water	1 oz.
Hydroqninone	10 gr.
Carbonate of potash	80 ,,

For use dilute with twice to four times the quantity of water.—EDITOR.

5994. **Depth of Focus.**—So-called depth of focus may be obtained by using lenses of short focus and stopping down. The rule is that the shorter the focus and the smaller the aperture the greater the depth of focus.—EDITOR.

5995. **Spotting-Out.**—A great deal depends upon the colour of the image, but a mixture of burnt sienna, indigo, and carmine lake will make a good tint.—EDITOR.

5996. **Mounts.**—Boudoir mounts measure $5\frac{1}{4}$ by $8\frac{1}{2}$, Mimette $1\frac{1}{2}$ by $2\frac{3}{8}$ in.—EDITOR.

5998. **Bellows Cracking.**—When leather begins to crack the best thing to do is to give it a good oiling, allow it to stand for a day and wipe excess off.—EDITOR.

5999. **Uranium Bath.**—An old but good formula is—

Chloride of gold	4 gr.
Nitrate of uranium	4 ,,
Salt	60 ,,
Acetate of soda	60 ,,
Distilled water	32 oz.
Carbonate of soda	20 gr.

Print deeply and wash prints well prior to toning.—EDITOR.

6003. **Greek Studies.**—The first essential is to get a suitable model with suitable drapery, and then arrange the same against a black background; a vignetting device is arranged in the camera A rapid plate should be used and the largest stop that will give satisfactory definition. The exposure depends solely upon the light, etc., and would be the same as any ordinary portrait.—EDITOR.

6018. **Crayon Work.**—There is an American book by J. Barhydt, "A Complete Treatise on the Art of Using Water-colours, making crayon, etc.," which can be had from Percy Lund and Co.—EDITOR.

6019 **The Thames.**—The best part of the river lies between Bray and Streatley, but a great deal depends upon individual tastes.—EDITOR.

6020. **Printing-Out Platinum.** — No information is given as to whose formulæ have been used. Pizzighelli's will give good results or a good formula was given in the "A. P. Annual," 1892, p. 90. The want of depth may be due to want of chlorate of potash in the sensitising solution, or to old paper.—EDITOR.

6021. **Photo-Xylography.**—An article on this appeared in the AMATEUR PHOTOGRAPHER, vol. xv. p. 291, April 8, 1892.—EDITOR.

6023 **Mounting.**—Celloidin paper being coated with celloidin or collodion, it may be mounted with starch paste exactly the same as ordinary albumenised paper. —EDITOR.

6036. **Lincoln.**—In reply to E. W. Snowball's query, as to the best views to be had in Lincoln, I should say that the best are those of the Minster—outside and inside. From almost every part of the town (the Cathedral or Minster stands on a hill) there are magnificent views to be had of it. There are also the various old gates or arches in the town, the Roman Arch, Exchequer Arch, Pottergate Arch, and Priory Gate; the Jew's House; John of Gaunt's stables; last, but not least, the Castle, which is of extreme historic interest. A wide-angle lens is an absolute necessity, for some of the best views of the Cathedral are only to be had close up to it. There are many churches round of interest; of these, the most interesting is the old Roman church of Stow, 15 min. by rail from Lincoln, about two miles from the station. It is even older than the Cathedral and has a most beautiful font. E. W. S. will find a capital dark-room and every requisite for photography at J. Birkbeck, chemist, Bailgate, close to the Cathedral.—GINGHAM.

6037. **Flashlight.**—I think querist will find that Schirm's flash lamp, in which the magnesium is blown along a cylindrical flame from the inside, is about the best he can obtain.—B. C. JOHNSON.

6039. **Focussing Screens.**—I find the following an excellent method. Take an ordinary piece of glass, the right size and shape required for camera, and mix together the following—

Gum sandarac	$1\frac{1}{2}$ dr.
Mastic	1 scruple
Ether	2 oz.
Benzole	1 oz.

then simply pour the mixture over the piece of glass and allow it to dry thoroughly.—B. C. JOHNSON.

6041. **Negative Wanted.**—The best thing for "Evertonian" to do, I think, is to write to the Secretary of the Wolverhampton Wanderers' Club, enclosing a stamped directed envelope; then perhaps he will let him know the address and name of the photographer to the club, from whom your querist may be able to purchase a print. If this fails, I am afraid it will be a hard job to get one.—D. H. W. PREEDY.

6042. **Lens Testing.**—To test lenses much practice and a fair amount of knowledge of optics are required; but no more than the ordinary knowledge of a photographer is required to be able to fairly well judge whether a lens is of no use or the other way about. But a lens to be tested properly requires to be treated in various ways, it requires to have its focus tested, the maxium aperture of the lens, the defining power of the lens with full aperture, and test if the lens is given to distortion. As each of these steps requires explanation which would occupy rather too much space here. I advise the querist to obtain a copy of Scovell's "Photographic Optics," by W. K. Burton, a book of great value to all photographers.—MONTROSE.

6043. **Aberystwith, N. Wales.**—I have twice spent the summer at Aberystwith, and a very nice seaside place it is, but photographically I cannot commend it. Of course there are the usual views of beach, etc., to be taken, but the immediate neighbourhood is not picturesque. As a centre no place could be much worse. You must go some distance by rail to get to any place worth going to, and the trains are slow, and the down trains most unpunctual. To get anywhere on the Barmouth coast you have to go up to Glandovey Junction, sixteen miles away. One good excursion is to the Llyfnant Valley, reached from Glandovey Station. At the Devil's Bridge, a twelve mile drive, there are doubtless some views to be got, but not whilst the coach waits. Altogether I certainly do not recommend it. I should think Barmouth a much better centre.—CLIFFORD E. F. NASH.

6043. **Aberystwith.** — Aberystwith is a splendid place for photographers to stay a fortnight. Some lovely views to be had, viz., Old Castle, Constitution Hill, Pier Head, etc., and can go in couple of hours to Devil's Bridge to expose few plates. I intend to go there myself in August, should like to spend a few days with "Prospector."—CARDI.

6045. **Mounting.**—I find photographs which are on any kind of paper are best mounted when moist; if not moist they are never so well mounted as a print which was damp when mounted. If this step is adopted which I believe is the general practice amongst professionals, it will be found no squeegeeing of any kind will be required, but sometimes it is as well to roll a roller squeegee over the print in order to squeeze any (the best is starch) which is not required and which will only cause the print to be lumpy when dry. No blotting paper should ever be used, especially coloured – MONTROSE.

6048 **Snap-shot Developer.** — The following is from the "A. P. Annual" of 1892 which I find gives good negatives. A. Weigh 6 drams sulphite of soda, disolve in $1\frac{1}{2}$ oz. of water then add 25 grains citric acid finally add 2 drams of pyro and make up to $2\frac{1}{2}$ oz of water. B. A saturated solution of common washing soda, to use the developer take 1 part of A to 7 of B, which must be used only for snap-shot exposures, for any other purpose it is of no use whatever.—MONTROSE.

6048. **Snap-shot Developer.** — Probably a little amidol with the pyro soda developer would work well. I can say confidently that a little metol acts wonderfully in the way of bringing up the detail. I keep the metol made up with sulphite, thus:—metol 1 gr., sulphite 10 gr in 1 dram. If, after adding the normal amount of soda, detail still hangs back, I add three or five or more drops of the metol solution to the ounce of developer, and find it very useful. I use Imperial plates, but the above would doubtless work just as well with Ilford or any other plates.—CLIFFORD E. F. NASH.

QUERIES UNANSWERED.

April 14.—Nos. 6027, 6029, 6030, 6032.
,, 21.—Nos. 6035, 6038, 6040, 6044, 6046, 6047, 6049, 6050.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

E. RICHARDSON.—Watkinson Bros., Harrison Street, Leeds, will snpply you with any quantity of the grooving you requirs. If you are an amateur mechanic and carpenter, their price list is worth having.

S. R.—There is always the failing that too much knowledge on the part of the reader is assumed by a writer. The formula, however, would read as follows—

I.

Potass. bromide	180 gr. or	20 gram.
Mercury perchloride	180 ,, ,,	20 ,,
Water	1 pint ,,	1,000 c.c.

II.

Silver nitrate	180 gr. or	20 gram.
Potass. cyanide	180 ,, ,,	20 ,,
Water	1 pint ,,	1,000 c.c.

Keep in too separate solutions. There should always be a little flocculent precipitate of cyanide of silver in solution No. 2; if there is not add more silver nitrate. Immerse the negative in No. 1 till bleached, wash well and then immerse in No. 2 till blackened. Care must be taken that the negatives are not allowed to remain in No. 2 too long, or else the fine details in shadow will be attacked; wash well after blackening, and dry. The solutions can be used over and over again, and the solutions will keep, though they should be kept in the dark.

W. T. C.—The address is Lancaster and Son, Colmore Row, Birmingham. You will find "Elementary Photography," by J. A. Hodges, price 1s. post free from our publishers, the best elementary text book.

DELTA.—Our medallist has been very busy, but promises them this week, when yours will be sent on.

CARBON.—Your query is inadmissible. We have used the camera, and, considering price, obtained satisfactory results.

A. H. BRADBURN.—Wet your canvas and stretch it on the frame, and then give it a coat or two of the following—

Common whiting	1 lb.
Glue powder	$\frac{1}{4}$,,
Treacle	$\frac{1}{2}$ pint
Water	$\frac{1}{2}$ gall.

Allow the glue to soak for four hours, with constant stirring, dissolve by heat, add the treacle, and break the whiting up into it, mix thoroughly and add—

Ivory black	1 oz.
Ultramarine	$\frac{1}{2}$,,
Red ochre	$\frac{1}{4}$,,

Ground down into a very fine cream with water. The tint may be darkened or lightened according to the amount of colour added; the colour is lighter when dry.

B.—We have inserted query. It is an extremely difficult thing to remedy partial fixation. You might try a strong acid hypo bath, either the Fixir-salt of Andresen or one of Marion's fixing cartridges dissolved in 2 oz. water, and allow the plate to soak in it. Another method would be to reconvert the image into bromide of silver with the following—

Bromide of potash	40 gr.
Bichromate of potash	80 ,,
Nitric acid	10 drops
Water	4 oz.

When thoroughly bleached, wash well for an hour and redevelop, and, as soon as the image is reduced, refix

S. P. TWEMLOW.—Statuary would not be admissible, and we are afraid it is too late to alter the conditions now.

COLONIAL.—A great deal depends upon the quality of the soda salt and on the length of development. The use of an acid fixing bath will also prevent the stain to a great extent. Pure carbonate of soda has not much tendency to stain, and a clean acid fixing is the best preventive. If yon drop your plates into the acid chrome alum bath after developing, and then wash well and fix, you will not find much staining. With regard to the chloride paper, we should say that the cause of the blistering is unequal temperatures of the solutions. If, however, you will use the alkaline chrome alum bath suggested by Dr. Stolze, we think you will get over your trouble:—

Chrome alum	5 gram.
Distilled water	100 c.cm.

Add sufficient liq. ammonia to cause a permanent but slight precipitate after shaking, then filter. Immerse the printe without washing in this, then wash well and tone as usual. Write again if not successful, but look to the temperatures of yonr solutions.

J. H. W.—(1) Place the cemented lens in the front, with the convex side to the object and the hollow side to the camera. If you now examine the two other lenses you will find one is convex (that is, thicker in the middle than the sides) and the other is concave (that is, thinner in the middle than the sides). The convex lens has one side flatter than the other Place this flat side in the mount next the ground glass, then place the separating ring in position, and then the concave lens with its hollow towards the ring, screw in the holding ring, and screw into the back of the lens mount. (2) The portrait lens may be of 5 in. focus, but the front lens, which should be the only one you could use in a hand-camera, would be about 10 in. focus You cannot use any of the lenses, therefore, in a hand-camera. (3) The front combination is a convergent meniscus achromatised, or achromatic. The concave lens is a divergent meniscus non-achromatic, or not corrected; the other is a double convex lens also non-achromatic.

TRIX.—(1) Provided a combined toning bath is properly used and made, that is not compounded of every chemical abomination under the sun, and is not used too long, there is no harm in it. Possibly the fault of your bath lies in its not bsing satnrated with chloride of silver first. Very few combined baths will tone well unless they are saturated with silver, which may be effected by adding chloride of silver to them, or immersing spoilt and useless prints. As a rule, the prints should tone in fifteen minutes. (2) You must use the largest stop that will give you satisfactory definition. Frequently in architecture this will be the smallest. Send us up some prints taken with the new lens for criticism.

LEARNER.—Very probably you are over-exposing. Add one-fourth of the B solution at first, wait two minutes, and add a second quantity, and proceed in this way. It does not require more water adding to it.

F P.—We believe that the latest improvement in the focal plane shutter is an adjustable slit which will enable you to give slower exposures. Loman's slit shutter, for which Mawson and Swan are agents, has a fixed slit and an adjustable spring, and the slowest exposure is about a quarter of a second.

ENLARGING.—The distances approximately to enlarge from whole-plate to 12 by 10 with an 11½ in. lens will be, between lens and paper, 29 in.; between lens and negative, 19 in. Place the negative at one end of your enlarging apparatus or in the camera, covering it with a piece of ground glass, rack the lens out to 19 in., and then by racking the plane of the sensitive paper out to 29 in., you will find it about right, and can easily adjust it to get fine focus. Place the whole arrangement on a slanting board, and point negative to the sky and expose.

DOUBT.—We do not allow such queries to be inserted. They lead to invidious comparisons, which are not advisable. You cannot accurately compare the two lenses, but the cheaper ones are satisfactory and reliable.

CEFNI.—The print is copied through a screen of crossed lines. A sheet of zinc or copper is coated with bitumen, dried, exposed to light under the grained negative, developed with turpentine or benzine, etched in an acid bath, and mounted on wood. The process is not one which may be considered within the limits of an ordinary amateur's work, but W. T. Wilkinson's book on "Photo-engraving and Collotype," price 5s., or Burton's "Printing and Photo-mechanical Processes," would give you all the information you require.

W. P. JACOBS.—The wet collodion process and transfer paper are the technical names. See answer to Cefni above as to text books.

DER DEUTSCHER.—(1) Over-printed and over-toned, wants at least ¾ in. off foreground to cut the figure out, and clouds would improve it. (2) Spoilt by the figure, and wants clouds. We do not think you would be rendered ineligible to compete under the circumstances named.

P. T. O.—So far as we are aware, the only method of obtaining reddish tones on P.O.P. is to tone very little and fix. Possibly by under-printing, washing well and using the uranium intensifier, you might get somewhat of the tones you want, but this we have not tried, and merely throw out as a suggestion.

J. G. T.—We are all a little bit sick of the exhibition, but we hear some such show as you suggest is on the tapis, so we have not inserted your letter. With regard to your shutter, can you not arrange to swing the shutter round on a pivot and lock it in the position you want? This seems to be the simplest method of getting over the difficulty, short of buying a new one altogether. With regard to evening classes, we may think about it in the winter, certainly not now it is so hot.

SOLIO.—Probably you are using too much mountant. Try cutting pieces of clean writing paper the same size as print, and put this over the print while squeegeeing. It should not be possible to squeeze any mountant out from under the print.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for **Fourpence**, Every additional **three** words, **one penny**. The name and address of the sender **must be paid for**. (A single figure, or group of figures undivided by letter, space, stop, or words, counts as **one word**; compound words count as **two words**.)*

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ADDRESS.—*All advertisements (which can be received up to **Tuesday** mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, *1, Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR, AMATEUR PHOTOGRAPHER, *1, Creed Lane, London, E.C., who will report upon the apparatus to the **buyer** for a minimum fee of **2s. 6d.**, or a commission of **2½ per cent.**, upon the sale price of the apparatus.*

Cameras, etc.—For sale, Lancaster's Omnigraph, in good condition, also Watkins' exposure meter. What offers?—George Lewis, Bollington, Macclesfield.

Cameras, Lenses, etc. — Whole-plate Watson's Premier camera, long focus, three double backs, leather bag, nearly new, 10 guineas; 9 by 7 Ross' R.S. lens, £5.—Vicar of St. John's, Woolwich.

Camera, 7½ by 5, swing-back, rising front, three home-made double dark slides, thoroughly light-tight, whole-plate landscape lens, stops, superior canvas knapsack case, two printing frames, price £3.—Roddick 13, Mentone Terrace, Edinhurgh.

Half-plate mahogany folding camera, all movements, 15in. extension, in good condition, complete with lens and double dark slide, 30s.; approval.—Aston, 93, Pinfold Street, Darlaston.

Lancaster's Omnigraph and finder, 14s.; Lancaster's quarter view lens, iris diaphragm and shutter, 15s.; lot, 25s.—1, St. George's Road, Peckham, London, S.E.

Hand-cameras, etc.—No. 3 Kodak, latest pattern, about 40 exposures, as new, £6, lowest.—Swales, 7, Haxby Road, York.

Rover (Lancaster's) hand-camera, half-plate, new in February, pneumatic time and instantaneous See Saw shutter, rapid landscape lens, perfect green baize outer cover, 70s.—W. A. Wood, Sea View House, St. Mellons, near Cardiff.

Kodak, No. 3 Junior, cost £8 10s., perfect condition, £5.—Spurrell, Tavistock Place, Plymouth.

Kodak, No. 1, equal new, 50s., cost 105s.—D. Reilly, Woodberry Down, Finshury Park, N.

Talmer perfected (1891) hand-camera, in first-rate condition, £5, cost £6 12s. 6d.—C. H. H., Elmstead, Birkdale, Southport

5 by 4 folding Kodak and rollholder, complete, latest pattern, will also take dark slides, £8 10s.—Thompstone, Brooklands, Manchester.

Key camera, latest pattern, with all accessories, fitted in splendid magazine travelling case, excellent definition, serious accident to owner cause of selling, dozens of first-class negatives can be shown, lot worth £9, take £5 10s.—93, Brewery Road, Plumstead, Kent.

A Frena hand-camera, complete and perfect as new, with 40 films, £4; Ross' 4in. portable symmetrical lens, 47s 6d., perfect; 5in. do., 50s.; whole-plate R.R. by Photographic Stores, very fine lens, complete, 35s.—G. E. Franklin, Rosebank, Rickmansworth.

For sale, Picnic Basket detective camera by London Stereoscopic Company, with three double backs, but little used and in good condition, cost £9 10s., price £4 10s.—Crozier, 14, Morden Road, Blackheath, S.E.

Optimus Ubique hand-camera, R.R. lens, three dark slides, roller blind shutter, 75s.—Kendel, 1, Hanover Park, Peckham.

Zoka, absolutely new, used once, bought dearer pattern, cost 12s. 6d., cash 9s. 6d.—Bateman, Top Floor, 115, Cannon Street.

Kodak, No. 3 Junior, about 30 unexposed films, equal new, £5 15s lowest.—Bygrave, 13, Canterhury Road, Brixton, S.W.

Adams' ('92) Ideal hand-camera, in perfect condition, £5 7s. 6d., specimen print forwarded; Express hand-camera, carries 12 plates, view finder, Fallowfield's Facile lens and shutter, perfect, £4.—Cammack, Dawes Road, Fulham.

Lenses, etc.—Stereo lenses. A matched pair of compound portrait lenses, and a matched pair of single view lenses, all by Ross, price £5, condition as new. Can be seen by appointment.—L., Mrs. Brown, 201, Mare Street, Hackney.

Quarter-plate lens and shutter for Lancaster's Instantograph, price 7s. 6d.—W. Sanderson, 20, Scotch Street, Carlisle.

Ross' 8 by 5 R.S., 3 doz. 5 by 4 plates, and whole-plate printing frame, £4.—Vicar, Mere, Wilts.

Lancaster's quarter landscape lens and See-Saw shutter, perfect, 7s. 6d.—H. E. Illingworth, Rawdon, Leeds.

Half-plate rectilinear lens, with diaphragms, lowest cash price, 15s.—Haddrell, 47, Milsom Road, West Kensington, London.

Dallmeyer's 5 by 4 6in. rectilinear lens, cost £4 10s., covers half-plate perfectly; 12 by 10 French rectilinear lens, loose hood, cost £4 10s., both in excellent condition; opera glasses (West, Strand), silver-plated, perfect, cost £4 10s.—Birkbeck, Bailgate, Lincoln.

Whole-plate rapid rectilinear, focus 11½in., iris diaphragms, working *f*/8, removable hood, new and perfect, first P.O. for 28s.—Miss Summers, Hillesley, Glos.

Whole-plate rapid rectilinear, working *f*/8, 35s.; do., wide-angle rectilinear, rotating stops, 45s; whole-plate Euryscope, 80s.; fine instruments, only used about once, property of gentleman.—Albert Durn, Wotton-under-Edge, Glos.

Sets.—Offers wanted for whole-plate set (new condition), in one lot or separately, Lancaster's extra special camera (brass-bound), three double slides, Laverne rapid symmetrical lens, Thornton-Pickard time shutter, Maudsley sliding stand, partitioned carrying case.—No. 400, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Half-plate Merveilleux camera, two slides, lens, stand, 35s., or offers.—Moore, Buckfastleigh.

Whole-plate camera, Rayment's long-extension, three double dark slides, and carriers for half and quarter plate, one extra sliding front, and T spirit level on top, £6; one Sands and Hunter's R.R. whole-plate lens and set, Waterhouse diaphragms in case, £3; one do. R.R. wide-angle lens, revolving diaphragms in case, £2 15s.; two tripod stands, one two-fold with triangle top, and one three-fold and sliding joints, circular top, £1; one Sargeant's instantaneous shutter, complete in case, £1 5s.; one leather case (lock and key), and shoulder strap to hold camera dark slides, tripod heads and lenses, £1 10s.; one view finder and focussing glass, complete, to fix on camera, 5s.—J. B. Clark, The Woodhines, Langley Road, Watford, Herts.

Quarter-plate camera (Hare's best), with Taylor and Hobson's R.R. lens and three double backs, complete in best leather case, three-fold tripod in case, and six printing frames, also excellent 18-plate changing box and slide (Hare), cost £4, all as new, the lot £10; a negative plate box and 5 doz. of England's dry plates, also developing trays.—J. Jeffery, 6, Florence Terrace, Falmouth.

Lancaster's quarter-plate Instantograph, complete, with lens, stand, shutter, light-tight plate and paper boxes, printing frames, dishes, scales and weights, Tyler's light-tight bags, squeegee, view finder, album, plate rack, changing bag, vignetting screens and flaps, £2 2s.—W. Taylor, 2A, Garway Road, Bayswater.

Sundries.—Instantograph double slides, half-plate, three, 6s. 9d. each, perfect; good canvas case, 8s. 6d.; 7 by 5 rectilinear lens, stops *f*/8 to *f*/44, loose hood and flange, 24s.; approval.—Adams, Hermitage Mews, Stamford Hill, N.

To all and sundry. The 10 by 8 camera, etc., went off first shot. You are all too late for the ferry. Ohio!!! Ohio!!!

WANTED.

Background.—Background, 9ft. by 9ft. (or nearly), wanted in haste (state colour and material).—O'Brien, 136, Lexham Gardens, London, S.W.

Cameras, etc.—Quarter-plate square short-focus camera, reversible back, and all improvements, not cheap make.—J. C., c/o Mr. Easton, 62, Great Portland Street, W.

Enlarging Apparatus.—Wanted, 5in. Hume's Cantilever enlarging apparatus, with objective; approval; deposit. Lowest price to E. H., 44, Wandle Road, Wandsworth Common.

Hand-cameras, etc. — Wanted, Talmer hand-camera No. 2 or 3; send particulars and very lowest price for cash.—Frank Stenhouse, Walsden, Todmorden.

Hand-camera, Underwood's Sphynx, or other reputed make, lowest price, approval.—Hand, Overton Street, Liverpool.

Wanted, quarter-plate hand-camera, must be cheap.—Thos. Walpole, 100, Dudley Road, Grantham.

Lenses, etc.—Wanted, half-plate R.R. lens, Lancaster's Silver Ring or equal, also scales and weights, must be cheap.—Wm. J. Robinson, 7, Bridge Street, Paisley.

Wanted, quarter-plate or 5 by 4 R.R. lens, 5½ focus, good maker. Lowest price to Westworth, Lowe Street Printing Works, St. Helens, Lancashire.

Wanted, wide-angle R.R. lens, half-plate size, by good makers, condition must be as new and price moderate.—No. 401, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Set.—Wanted, half-plate set with latest improvements.—Alpha, 16, Addey Street, Sheffield.

Sheaths. — Wanted, dozen or eighteen quarter sheaths cheap.—James, 8, Finch Lane, London, E.C.

Sundries.—Wanted, brother amateur to share portion of house and dark-room.—E. H., 44, Wandle Road, Wandsworth Common.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Cameras and Sets.—Whole-plate Optimus Rapidograph camera, double extension leather bellows, rising and falling front, reversing and swing back fitted three double book-form slides, with patent catches and clips, very fine rapid rectilinear lens, iris stops, three-fold ash tripod and camera case, £3 17s. 6d.; Lancaster's whole-plate brass-bound Instantograph, wide-angle movement, all latest improvements, leather bellows, etc,. fitted Lancaster lens, iris stops, instantaneous shutter, two double brass-bound slides, carriers and folding stand, finest condition, £6 17s. 6d.; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; half-plate Lancaster's Instantograph camera, double extension leather bellows, all improvements, rapid rectilinear lenses, two double slides, folding stand and case, £3 17s. 6d.; half-plate camera, by Houghton, Holborn, grand lot, double extension, rising and falling front, swing and reversing back, three double slides, grand rapid rectilinear lens, iris stops, works *f*/8, and three-fold stand, set as new, £6 10s; Lancaster's 5 by 4 International, all latest improvements, wide-angle movements, fitted Optimus rapid rectilinear lens, iris stops, double slides, and folding stand, £3 15s.; half-plate Duchess camera, double extension leather bellows, rising front, swing and reversing back, fitted rapid rectilinear lens by Laverne, two double dark slides, three-fold stand, in waterproof canvas case grand lot, £5 15s. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Tench No. 7 landscape, covers 12 by 10, rotating stops, grand definition, as new, 70s., cost £3 10s.; whole-plate rapid rectilinear by Watson, Holborn, fitted iris stops, works *f*/8, condition as new, 75s.; Grubb's 8 by 5 rapid rectilinear, fitted Waterhouse stops, grand definition, £3 15s.; Chadwick 7 by 5 rapid rectilinear, fitted iris stops, best condition, as new, 35s.; Ross No. 3 portable symmetrical, 5 in. focus, rotating stops, finest condition, 50s.; half-plate rapid rectilinear lens by Vevers, Leeds, fitted Waterhouse stops, works *f*/8, 8½ in. focus, 18s. 6d.; 7 by 5 rapid rectilinear by Browning, fitted Waterhouse stops, grand definition, as new, 27s. 6d.; 7 by 5 rapid rectilinear lens, by Laverne, works *f*/8, movable hood, grand definition, covers well, as new, 27s. 6d.; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s.; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works *f*/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s.; 7 by 5 Optimus landscape lens, rotating stops, finest condition, 27s. 6d.; 7 by 5 "Black Band" lens by London Stereoscopic Co., Waterhouse stops, covers well, finest order, 45s.; Ross No. 3 C.-D.-V. portrait lens, Waterhouse stops, rack focussing, best condition, grand article, £6 6s., cost £11 11s.; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works *f*/8, movable hood, as new, 45s.; 5 by 4 Dallmeyer wide-angle landscape lens rotating (1A patent), rotating stops, grand definition, 50s.; Ross's No. 4 portable symmetrical, 6 in. focus, rotating stops, as new, 63s.; Laverne ¼ wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B), Waterhouse stops rack focussing, condition as new, £3 17s, 6d., cos £6 5s.; 5 by 4 Optimus rapid rectilinear, Waterhouse stops, works *f*/8, as new, 27s. 5d. On view, City Sale and Exchange Rooms. 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

Bargains in Hand Cameras.—Rouch's quarter-plate Eureka hand-camera, fitted Rouch's rapid rectilinear lens, roller blind shutter, carries 12 quarter-plates, bag changing, finder, covered leather, adjustable focus, as new, £4 10s.; Swinden and Earp hand-camera, fitted Laverne, rapid rectilinear lens, Kershaw shutter, adjustable focus, carries 20 quarter-plates, covered leather, best condition, £4 15s.; Adams' Otto hand-camera, fitted very fine landscape lens, time and instantaneous shutter, two finders, covered leather, 37s. 6d.; Laverne's hand-camera, fitted very fine landscape lens, iris stops, time and instantaneous shutter, two finders, automatic changing, carries twelve quarter-plates, covered leather, £2 17s. 6d.; Beck's hand-camera, 5 by 4, fitted Beck's autograph lens, iris stops, eight double dark-slides, Newman's time and instantaneous shutter, two finders, adjustable focus, covered in morocco leather, very finest condition, take £10 10s; Talmer hand-camera, as new, good lens, time and instantaneous shutter, carries twelve quarter-plates, bag changing, two large finders, lowest, 63s.; Houghton "London" hand-camera, fitted good lens, adjustable finder, shutter for twelve quarter-plates, ebonised, as new, 45s.; Radial hand-camera, by Marion, fitted "Soho" lens, carries twelve quarter-plates, shutter, two finders, focusser, etc., in leather case. £5 17s. 6d.; Ariel hand-camera, leather bellows, fitted Wray's 5 in. R.R. lens, rotating stops, Thornton-Pickard shutter, three double book-form slides, finder, complete in case, as new, £5 10s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

ENLARGING APPARATUS, quarter-plate, 5in. condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work. —Hume, 1, West College Street, Edinburgh.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

Bijou Enlarging Lanterns.—Finest results with Hughes's patent rectangular condensers, half the size of ordinary make, superior definition, proper diffusion of light; scientifically constructed, not commercial; several whole and half plate for sale, cheap.

The Marvellous Pamphengos.—Finest oil-lighted lantern, perfection, equals limelight, stood the test of over fourteen years against all imitations. Over 3,000 sold; supplied to the Government, School Boards, Science Teachers, the Clergy, and Institutions. Elegant solid brass fronts, high-class lenses, unequalled for definition and brilliancy, from £2 10s. each.

Magic Lanterns, Magic Lanterns.—Largest assortment in the world, cheapest and best, nicely japanned lantern, 4 in. double condensers, portrait combination front lenses, rack and pinion, four-wick lamp, in case, £1 7s. 6d. Others more elaborate, but as cheap.

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Fine Triple Lantern; telescopic draw tubes, four set of high-class lenses, £38 10s., worth nearly double. Given away.

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Elegant Mahogany Biunial; brass fronts, £7 10s.; blow-through safety jets, 6s. 6d. and 8s. 6d.; mixed gas jet, 12s. 6d.; Malden double dissolving tap, 12s. 6d.; regulators 12s. 6d.; gauges, 12s. 6d.; grand effects; particulars free, before purchasing. Send for Mr. Hughes's grandly illustrated catalogue, over 180 finely cut original wood engravings, price 6d., postage 3d.; separate list of 60,000 slides, price 6d., postage 3d.; pamphlets free; second-hand lists free of bargains.—W. C. HUGHES, Brewster House, Mortimer Road, Kingsland, London, N. Fifty slides, all nicely coloured, on loan for 3s., in special despatch boxes

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SECOND ANNUAL STOCK-REDUCING SALE to clear for the coming Season, 50 per cent. Reduction in some cases! New high-class Cameras, all sizes; Platinotype and Key Hand-Cameras. Ross, Dallmeyer, Beck, and Wray's R.R. and Wide-Angle Lenses. 50,000 Mounts, all sizes; Canvas and Leather Cases, Tripods, Presses, Dishes, and all Accessories Special opportunity to purchase complete outfits at great reductions. Printed Lists on application to EDWARD PECK, Photographic Chemist, East Dereham, Norfolk.

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lephone Nº 1645 Telegraphic Address: VINEY, LONDON

Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 448. Vol. XVII.] FRIDAY, MAY 5, 1893. [Price Twopence.

OUR ◆ VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 till 5 o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from 10 till 1 o'clock.

Our Views—Professional Show Cases—Professionals Against Amateurs—The British Workman—Photography Helps Justice—Mr. Horsley Hinton's Lectures at the Polytechnic—Outdoor Practical Lessons—Philadelphia and English Exhibitors—Mr. Davison's Pictures—Our Prize Slides—World's Fair Congress—Trying to Evade the Law—Holiday Haunts.
Flotsam and Jetsam. By Anchorite.
Letters—No Connection (Hillman)—Instantaneous Shutters (One Who Didn't Know).
Apparatus—Archer Hand-Camera—Electric Darkroom Lamp—Optimus Printing-out Frame—Hicks' Sensitised Paper—Dawkin's Specialities—The Sun Washer.
Articles—Retouching (Parry)—At an Annual Exhibition (The Man About Town)—Through Devon and North Wales (Hodges)—Photographic Societies (Machus)—Photogravure (Denison)—Intensifying with Bromo-iodide of Copper (Jenney)—Dry Plate Making at Home (Bayley)—The Influence of the Hand-Camera (Welford).
Reviews—Eder's Jahrbuck—Regles Hypsometriques — London of To-day—Yorkshire's Pompeii.
Exhibitions—Philadelphia.
Societies' Meetings—Birmingham—Cheetham—City of London—Durham—E. London—Guildford—Hackney—Halifax—Kensington—Liverpool (A.P.A.)—Liverpool (Camera Club)—Tunbridge Wells—W. London—Leeds.

EDITORIAL DEPARTMENT—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

TERMS OF SUBSCRIPTION—

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Print Competition, No. 48, Architecture.—Latest day, May 15th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, May 26th, 1893.)

A good show-case is a *sine qua non* to the professional, and the truth of this is fully exemplified by the *modus operandi* of the high-class man. There are, however, some men calling themselves professional photographers who appear to ignore the matter altogether, the wretched specimens of their work that are hung in a slatternly manner outside their respective houses being an eye-sore to the passers-by. How on earth these individuals imagine that with such horrible samples of the "artist's" work before him any person in possession of his senses would venture to cross the threshold of this distorter of images entirely passes our comprehension. One photographer of this class who fancies himself as a "public-house artist" displays in his window silver prints of "pubs," in every one of which the upright lines converge almost to a point at the top, the whole of the buildings appear to be heeling over, "fog" and "rockets" are rampant, whilst some of the subjects are out of focus and others have moved in the printing, a double image all over being plainly visible. All of these works of art are displayed with the greatest boldness imaginable.

◆

It is such incapable, negligent men as these that are for ever complaining about the amateurs interfering with their business and taking the bread out of their mouths. The high-class photographer knows full well that he has nothing to fear from the daily additions to the amateur ranks. It is only such men as we have alluded to above who have cause to shake in their shoes, for they must eventually go to the wall as the ultimate result of the survival of the fittest.

◆

The British workman of to-day is more enlightened on all matters than he was a few years ago, and having become considerably critical cannot now be deluded into accepting any slipshod work. He knows the value of the almighty half-dollar, and for every "shekel" he expends he demands an equivalent return.

◆

Photography plays many strange parts. For instance, at the French vicarage of Esquermes, one day last week, two men who had waited until the priest had left the house, knocked at the door, and when the servant opened it, one of them threw pepper into her eyes and tried to strangle her, whilst the other ransacked the place. A gardener hearing the noise came up and caught one of the thieves, the other escaping. The police found on the prisoner a photographic group of himself and a number of his friends, thanks to which the man who was "wanted" was ultimately captured.

◆

Mr. A. Horsley Hinton has arranged to deliver a course of six lectures on pictorial photography, at the Polytechnic

Institute, Regent Street, London, commencing on May 30th. The title, "Our Photographs, and how to obtain Pictorial Excellence in them," is an attractive one, and, judging from the very comprehensive syllabus, which is now in the press, many students of the art side of photography should derive great help and instruction from the lecture classes. The instituting of these lectures is quite characteristic of the Polytechnic's keen appreciation of the requirements of the hour, and its readiness to meet them, and we doubt not that Mr. Horsley Hinton will have a very successful session. Particulars may be had on application to the Photographic School, Polytechnic, 309, Regent Street, W.

◆

CONCURRENTLY with the lectures Mr. Horsley Hinton will give to a limited number of students four outdoor practical demonstrations. "Four days in the field, with suggestions on the selection and treatment of landscape and other subjects," has also an attractive sound about it. For those who can spare the time a long day in the country with the camera, accompanied by a friendly guiding hand, promises well.

◆

WE publish elsewhere the report of the judges of the Philadelphia Exhibition, from which it will be seen that our English workers have been fairly successful, no less than thirteen out of twenty-six medals being awarded to British workers.

◆

MR. GEO. DAVISON has sent over examples of his work, and the report from which we clip the awards says:

> "Mr. Davison is probably the foremost exponent of the art side of photography in England, and the Committee are particularly pleased to show his work for the first time in America.
>
> "In illustration of the serious manner in which Mr. Davison has taken up photography as a means of art expression, it may be mentioned that it is his custom to produce but one good print from a negative, so that each of his pictures is as unique in its way as a painting produced by an artist in colour. Speaking of photographic processes, he says 'he does not care whether a thing is an enlarged or direct print, made with a "pinhole" or lens, so long as it is a *picture*.' Many of the examples contributed by Mr. Davison are made *without a lens*, the light entering the camera simply through a very small opening made with a pin in a piece of cardboard. As pictures these specimens are unexcelled by any in the exhibition. Mr. Davison's pictures are sent as a special loan collection, and are not entered in competition."

◆

IT is with regret that we learn that several societies were disappointed by not receiving our prize slides in time for exhibition. For five days they were lost, and could not be traced, and this because they were refused by one gentleman, we suppose on the ground that they did not reach him at the proper time.

◆

SHOULD any such accident occur in future we should be obliged if any one to whom they are addressed will take them in, and forward them at once to the next society, of which he will already have had notice, or communicate with us by telegram at once. We will undertake to refund any disbursements, so that there may be no further disappointments.

◆

ACCORDING to some of the American papers the Congress of Photographers at the World's Fair, which commences at Chicago on July 31st, and closes on August 5th, will be treated to some very good papers, if the names of the authors are any guarantee, as we find Miss Barnes, Prof. Barnard, Messrs. Ives, Vander Weyde, Scolik, Snowden Ward, Colson, Miethe, Husnik, Burton, Vidal, etc., and the titles of the papers, too, are decidedly promising.

◆

As our readers know, photography is only to be practised in the World's Fair grounds at the heavy charge of two dollars per day, and now it is said that a special detective camera in the shape of a cigar-case, taking plates only of infinitesimal size is being constructed to evade the impost. There never was a law, we suppose, but some one immediately tried to break it.

◆

IT is customary at this time of the year for us to start our notes on "Holiday Haunts and Photographic Resorts," and we shall be glad to receive brief accounts of or suggestions for tours. The principal points to be considered are:—

(1) The best starting point.
(2) Distance to objects of interest; best method of getting there.
(3) If permission to photograph is necessary; and, if so, where to apply.
(4) The most suitable time of day to take the object.

◆

WE have under consideration the publishing of a series of notes on these lines, illustrated with maps and full information, together with some illustrations, but we shall probably be able to make a more definite announcement within the next few weeks.

◆

PRESSURE on our space this week has compelled us to curtail some things and hold over others, so that we trust those who do not see their communications in print will forgive us.

Flotsam and Jetsam.

A BOOK has just been published from the office of our weighty contemporary, *Engineering*, which shows what photography can do in the way of description. "Jonathan et son Continent," by which resounding concatenation of letters Max O'Reill, it may be remembered, described America to the Americans—are really so big that no words, not even Jonathan's own, can fully represent them. The writers of the book we refer to, called "The Yosemite, Alaska, and the Yellowstone," seem to have felt this, and so they have gone in for photographs.

THEY have levelled their cameras at most of the marvels contained in the two stupendous valleys of which Americans are justly proud, and the results obtained are in every way admirable. This may be said with all the more emphasis, because the ground has been gone over very often before. The Yosemite and Yellowstone, however, are by no means the only places visited and illustrated, and it is no disparagement to the letterpress to say that the illustrations at least double the charm of the book.

WHAT has been done so well in this book may be done on a smaller scale, of course, and according to the measure of their various abilities and opportunities, by every amateur. Probably it is done far more generally than most of us are aware. The hosts of unknown amateurs who go away every year for their little holiday do not publish the results of their trips; but most of them, doubtless, preserve in some sort of order and sequence a pictorial record of their rambles.

THIS should certainly be aimed at, in preference to the mere accidental, happy-go-lucky mode of photography which too many amateurs practice. "It's a fine day. Let's go out and take something!" is the motto of many a photographic free lance. Of course, there is a certain kind of pleasure about this vagrant and irresponsible mode of procedure, and good results may be sometimes gained by it. But far better and far more fruitful of good results are the methods of the artist in photography, who brings careful thought and wise selection to bear on his work.

There have just returned to St. Louis, in America, Messrs. Allen and Sachtleben, two enterprising cyclists—American, of course—who have been round the world on their bicycles. They have pedalled the trifling matter of 17,000 miles in the performance of their task, and it has taken them three years all but two months to do it. Mr. Sachtleben, unlike many wheelmen, has found time to look about him, and he has brought back with him no less than 2,750 photographs which he has taken during his travels.

This establishes a record, surely! It is astonishing even for a scion of the land that licks creation. One instinctively flies to arithmetic, to find that on an average between two and three photos must have been taken every day. Mr. Sachtleben has come home just in time for the World's Fair, and if authorities there do not secure his collection it will be strange indeed. But how about developing and printing the pictures, 2,750 of them?

It has actually come to this at last, that photography has been made a political weapon. Not of her own seeking, though, and not in a partisan spirit has she entered this new field. Someone was enterprising enough to take an instantaneous photograph of the scene in Belfast on the occasion of Mr. Balfour's recent visit there.

The demonstration was painted in words by dozens, and even by scores, of ready journalistic pens, and it may perhaps be allowed to one who is outside the political arena to say that colour was laid on thickly, green or orange, according to the bias of the writers. The lovers of the green admitted it was a big crowd; the lovers of the orange hinted not obscurely at tremendous enthusiasm, unparalleled even in the annals of Belfast.

But by and bye the photograph, or, as a contemporary, green in more senses than one, put it, "the authentic and dispassionate record of the camera" appeared. And then, on the same authority, the world was told that at the demonstration there was "not more than one hat off in the whole crowd, and not a single handkerchief waving in the air."

Poor camera, with its authentic and dispassionate records! It is to be hoped it will escape the common fate of all things else that mingle in the political maëlstrom—to be lauded to the skies by one side, and to be reviled as dirt by the other; to be called black by these, and white by those.

And poor demonstrators too, now that the political photographer threatens them. For the hint may be taken whenever the next big procession is got up; the crowd will have to work hard, and perform veritable conjuring tricks with their hats and handkerchiefs, lest some enterprising camera worked by a political opponent should be snapped on them in an unguarded moment of repose, and a calm and dispassionate record be afterwards produced to prove the lack of enthusiasm.

Mr. Fisher Unwin, whose publishing enterprise seems to know no bounds, is about to issue a series of twenty-five of the remarkable portraits taken by the late Mrs. Cameron and her son. The title of the book will be "Alfred Lord Tennyson and his Friends," and it will include an introduction by H. H. Hay Cameron, and an essay by Mrs. Thackeray Ritchie. It only need be said that among the portraits will be four of Tennyson, one of Lady Tennyson, Longfellow, Browning, Carlyle, Lowell, Darwin, Mr. Gladstone, and Mr. Irving, with many other lesser men, to show the value of the production.

A remarkable testimony to Mrs. Cameron's portraits of Tennyson was paid by the Rev. F. D. Maurice, according to the *Chronicle*. He once wrote to her:—"Had we such portraits of Shakespeare and of Milton, we should know more of their own selves. We should have better commentaries on 'Hamlet' and on 'Comus' than we now possess, even as you have secured to us a better commentary on 'Maud' and 'In Memoriam' than all our critics have given us or ever will give us."

There is at least one amateur photographer in the world who is supremely happy just now. He has had a chance that comes to not one in a thousand, and was quick to avail himself of it. The Emperor and Empress of Germany, and the King and Queen of Italy were at Pompeii on Saturday last, watching the excavation of a house in the Via Romana there.

To quote the picturesque language of the correspondent of the *Standard*, "The Empress and Queen were seated; the King leaned against a portico; the Emperor had his arm round the shoulders of the Duke of the Abruzzi; and the group proved irresistible to a gentleman behind me with a camera." Irresistible indeed! Anchorite.

Letters to the Editor.

NO CONNECTION.

Sir,—Although I am far away, and my letter consequently will reach you later than would ordinarily be desirable, I must make my protest against the following expression in a letter over the signature "Ghosts": "The falsehood and humbug that surround the doctrines that support vegetarianism and spiritualism."

Vegetarianism and spiritualism have nothing in common, and most vegetarians will agree—for they are mostly men of intellect—in condemning all this spiritualistic nonsense. Your correspondent is evidently ignorant of the sound historical and physiological basis upon which vegetarianism is founded, and which is the cause for its attracting chiefly men whose education is such as enables them to weigh its claims fairly. The mention of such names as Professor Newman, Count Tolstoi, Mr. Edison, and many others, to say nothing of the greatest of ancient sages, is quite sufficient to raise vegetarianism above such foolish remarks as that of "Ghosts." As it is not within your province to discuss the question, I will simply ask you to insert this brief protest as coming from one who was attracted to vegetarianism by its scientific soundness, and who has practically tested the value of strict vegetarianism both in the variable climate of England and in the tropical heat of Ceylon, and that with such good results that my wish is to remain a vegetarian to my last days.—Yours, etc., Harry Hillman.

Colombo, April 13th.

* * * *

INSTANTANEOUS SHUTTERS.

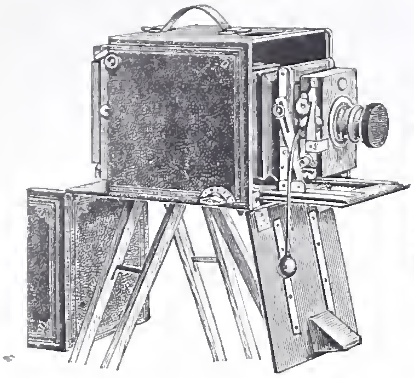
Sir,—In reply to "Animalculæ," "One who Doesn't [or didn't] Know" read all the correspondence on the subject, and could have *guessed* perhaps what was meant, but guessing generally leads to error, and really means not knowing. I am under the impression I was referring to the experience of "C. P.," and not that of "Tommy Atkins" or "Animalculæ." I finally understood that a focal plane roller-blind shutter was meant; but now "Animalculæ" wants to fog it again by informing the public that a Thornton and Pickard time and instantaneous blind shutter was meant, viz., a shutter which may be working in front or behind the objective, but not immediately in front of the plate. I fail to appreciate "Animalculæ's" information on the subject.

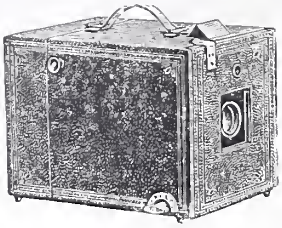
One who Didn't Know.

Apparatus.

THE ARCHER HAND-CAMERA.

Messrs. Archer and Sons, of 43, Lord Street, Liverpool, have submitted for notice the above camera, which is at once a hand and stand camera. Practically it consists of an ordinary quarter-plate camera enclosed in a box, neatly covered with leather. The front is removable, and the bellows extend to 12 in., so that a long-focus lens can be used if desired. A Thornton-Pickard time and instantaneous shutter is fitted behind the lens, and a rising and swing front is fitted, whilst a double swingback with axial swing is also provided. Two finders are provided; a focussing screen and reversing back are also getatable when the back is let down for stand use. The shutters of the dark slides fold right back, and are quite enclosed, so that the camera may be carried about with the shutter set, and the slide drawn ready for work.

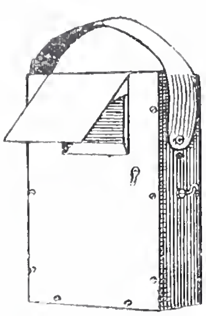




The camera is well made, and will be found exceedingly useful for tourist and ordinary work. Price £5 5s., with three dark slides.

ELECTRIC DARK-ROOM LAMP.

The Primary and Secondary Battery Co., of 17, Loman St., E.C., are placing upon the market a new electric dark-room lamp, as shown in the accompanying diagram. It measures 4½ by 1¾ by 6½ in., and weighs 2¾ lb. The light will last for about four hours, and it can then be recharged at any station for about 6d., or from three small bichromate cells, which cost about 4s. 6d. The small flap-screen protects the eyes from the direct light, and on pushing the same flat the light is extinguished. The price is 40s. or with removable ruby shade to enable the lamp to be used with white light 45s.



We have tried this in the dark-room, and it gives a clear and safe light. There being nothing to spill, it will commend itself to tourists. Larger sizes will shortly be introduced, which we shall notice in due course.

AMIDOL OR DIAMIDOPHENOL (DR. ANDRESEN'S).

SCHWARZ AND Co., of New Broad Street, have forwarded us a sample of the above, which we have given a good trial, and can speak very highly of. The formula we have used for development has been—

Amidol	4 gr.
Sodium sulphite	30 „
Distilled water	1 oz.

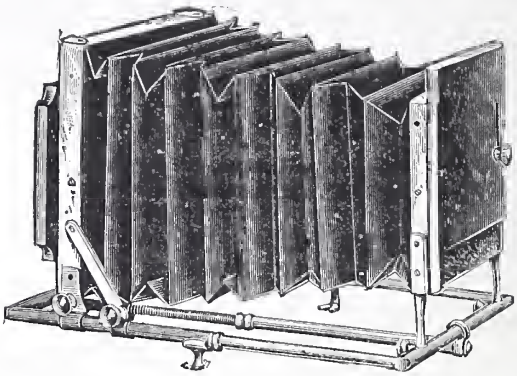
The image appears rapidly, yet clean and full printing density is attainable in a very short time. By lessening the quantity of amidol softer and thinner negatives were obtained, and addition of bromide and increase of amidol gave more contrast.

The property which amidol possesses of producing a visible image almost simultaneously both in the high lights and shadows, is one which makes it specially suitable for instantaneous work, as density can be obtained either by longer development or by intensification after fixing, and there is less likelihood of obtaining those dense high lights and glassy shadows so characteristic of some other developing agents.

Amidol has taken its place as a very valuable addition to our developers, and Dr. Andresen's name is sufficient guarantee of the purity of this preparation.

THE ZODIAC CAMERA.

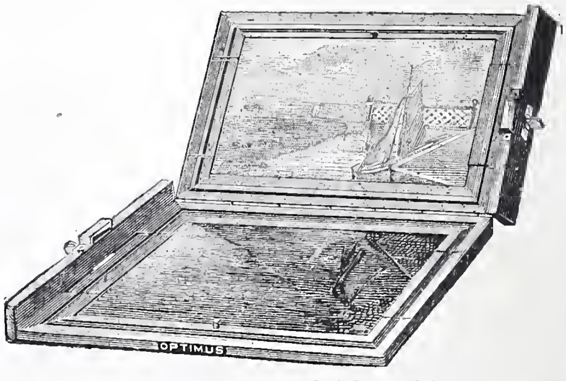
Walter Griffiths and Co., of Highgate Square, Moseley, Birmingham, have introduced a camera containing several novel points, in that light metal has replaced wood in the working parts of the camera. There is no baseboard, but the side and front rods of metal support the camera, and a central rod carries the extension screw, which is actuated by a milled head at the back of the camera. It has a rising front and swing-back, and the carrying rods are provided with pins for the stands, thus doing away with the head and loose screws. The dark slides are constructed of metal, and are only 1-8th of an inch larger than the plate, and 3-8ths of an inch thick, with pull-out shutters. The central portion of the slide pulls out, and the plates are placed in central sheaths. All the wood work is brass bound, and the camera is thoroughly well made, light, and rigid, and for the size of the plates very small. The back portion is made to slide forward, and a reversing back is also provided.



For really hard work, especially in tropical climates, the camera will be very useful, but no less so for home work. The price, with three double dark slides and ash-stand, is quarter plate, £3 13s. 6d., for half-plate, £5 5s.

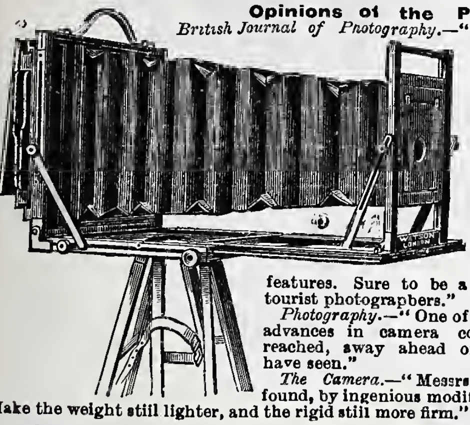
THE "OPTIMUS" PRINTING-OUT FRAME.

Messrs. Perken, Son and Rayment, of 99, Hatton Garden, E.C., have introduced a very effective and simple frame for printing-out opals and plates. As will be seen from the diagram, the negative is laid in the frame and tightened in position by the screw-head at one end. The opal or printing-out plate is laid



W. WATSON & SONS, 313, High Holborn, London.

WATSON'S "ACME" CAMERAS



Opinions of the Press.

British Journal of Photography.—"It folds into a smaller compass, and is lighter and more portable than any pattern we have yet seen."

Amateur Photographer. — "A wonderful, compact, and fairy-like instrument, exhibiting several new and important features. Sure to be a favourite with tourist photographers."

Photography.—"One of the greatest advances in camera construction yet reached, away ahead of anything we have seen."

The Camera.—"Messrs. Watson have found, by ingenious modifications, how to make the weight still lighter, and the rigid still more firm."

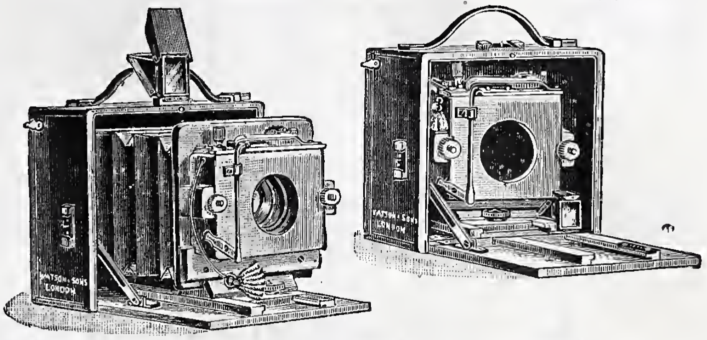
English Mechanic.—"For portability and compactness, combined with practical utility, this Camera may fairly be said to take the lead, and to be deserving of the title 'Acme.'"

W. W. & S. have the largest stock of Photographic Instruments held by any House in Europe.

Cameras and Lenses in all patterns and sizes from ¼-plate to 24 by 20, ready for immediate delivery, and being actual manufacturers, there is no middle profit to pay, and the very fullest value for cost is given in all their Instruments.

A Fully Illustrated and Descriptive **CATALOGUE** of Cameras, Lenses, and every Accessory Apparatus and Material requisite in Photography sent post free to any address on application.

THE "ALPHA" HAND CAMERA



Made in box form, of sufficient size to contain, when closed, the Bellows, Front, Lens, Shutter, and Finder. The front of the box falls down, and is held rigid and horizontal by a strut; the Camera is then extended along it to focus, a Scale of Distances is marked, but a ground glass is provided and can be used if desired. The Camera may be supplied complete, or alone, or fitted to any suitable Dark Slides, Lens, and Shutter.

Made in Three Sizes	¼	5 by 4	½ plate
Prices of Cameras without Slides	£1 10	£1 15	£2 10

COMPLETE OUTFITS.

	¼			5 by 4			½ plate.		
	£	s.	d.	£	s.	d.	£	s.	d.
Camera and 3 Double Slides	3	15	0	4	6	0	5	10	0
Watson's Rapid Rectilinear Lens, with Iris Diaphragm	2	17	6	3	2	6	4	0	0
Exposure Shutter...	1	0	0	1	0	0	1	0	0
Finder	0	10	6	0	10	6	0	10	6
Travelling Case ...	0	12	0	0	15	0	1	0	[illegible]
	8	15	0	9	14	0	12	0	6

	¼			5 by 4			½ plate		
	£	s.	d.	£	s.	d.	£	s.	d.
Camera & 1 Double Slide	2	5	0	2	12	0	3	10	0
Selected Continental Rectilinear Lens	1	10	0	1	10	0	2	5	0
Exposure Shutter...	1	0	0	1	0	0	1	0	0
Finder	0	10	6	0	10	6	0	10	6
Travelling Case ...	0	7	6	0	9	6	0	12	6
	5	13	0	6	2	0	7	18	0

10 per cent. Discount for Cash with Order.

28 Gold and other Medals received at International Exhibitions for excellent quality of Instruments
Six times placed alone, receiving a higher award than any Competitor.

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New and Improved Paper.

NO HEATING OF DEVELOPER REQUIRED.

NO EXTRA COST.

MADE IN THREE QUALITIES
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BB—Ditto ditto Thick, very strong.
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These Papers will be supplied in **Sealed Tin Tubes**, either in whole sheets (measuring 26 in. x 20 in.), or cut to photographic sizes.

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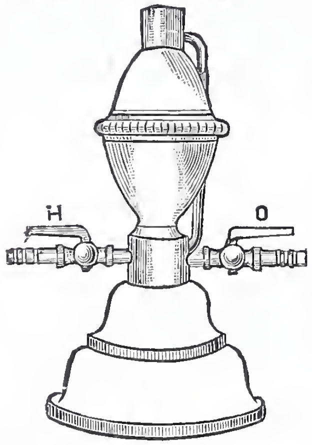

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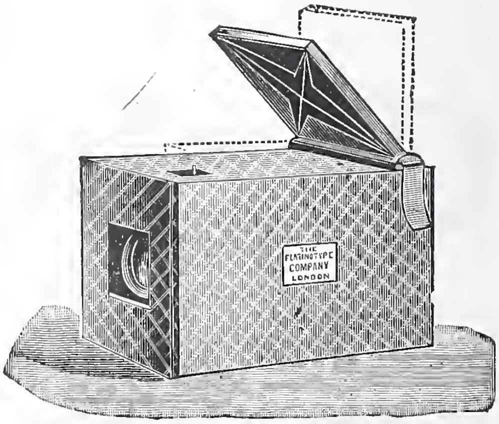
Etc., etc.



IMPROVED KEY CAMERA.

Simplest and Best Hand Camera made. Measures only 8 x $4\frac{3}{4}$ x 4 ins.

PRICE, Quarter-plate, £7 7s., with 6 Double-key Slides.
Ditto ditto 2nd Quality, £5, with 3 ditto ditto.

MAY BE SEEN AT THE OFFICE OF

The Platinotype Co.,
29, SOUTHAMPTON ROW, HOLBORN, LONDON, W.C.

in the back and also screwed firmly into position, and the back is now closed and clamped by small springs. The progress of printing may be examined by lifting the back, and it must fall into exactly the same position again, because of the long hinge, the whole length of the frame, and the projecting pin; a door is provided at the back to allow of the adjustment of the opal or plate on the negative.

This firm have also submitted to us the original Kew certificates of twenty-four clinical thermometers, of which thirteen are absolutely accurate, and of the other eleven not a single one shows an error of more than 0·2 degrees.

New hand-cameras or modifications of old ones are, of course, to be expected at the commencement of the season, and we saw one new camera by this firm which is applicable both to plates or films, or plates and films indiscriminately with a simplicity of movement quite remarkable. We shall have a full notice of this and other improved forms in a forthcoming issue.

HICKS' SENSITISED PAPER.

Mr. J. C. Hicks, of 221, Barry Road, Dulwich, S.E., has forwarded us a sample of the above, which we find free from smell, and yields brilliant prints, which tone rapidly and well to good tones.

DAWKINS' SPECIALITIES.

Mr. W. Dawkins, of 37, Cox Street West, Balsall Heath, Birmingham, has sent us his price list of photographic woodwork, which includes printing-frames in teak, oak, pine, and mahogany, plate and lantern boxes, stands, both studio and ordinary, vignetting frames, retouching desks, and other oddments.

Mr. Dawkins has now opened a retail establishment where all photographic requisites can be obtained.

THE "SUN" WASHER.

The "Sun" Camera Co., of 40, New Briggate, Leeds, have placed on the market the above washer, which has several advantages. The body is circular, and the water enters from the bottom, so that the prints are kept in constant motion without any danger of tearing, from the peculiar construction of the inlet. A supply of pure water can easily and instantly be obtained by a tap and arm over the top of the washer, so that this can be attached to the ordinary water supply in the dark-room, and need not be disconnected if developing is carried on at the same time.

It is made of stout zinc, and is not therefore liable to rust, and is provided with a syphon and overflow. Prices, whole plate, 12s. 6d.; 12 by 10, 21s.

Reviews.

Jahrbuch der Photographie und Reproductions Technik. Edited by Dr. Eder. Published by Wilhelm Knapp, Halle-a-S. Price 8s.

Eder's "Jahrbuch" is always welcome, containing as it does not only articles from the best authorities of the day, but also the most complete summary of the progress during the past twelve months. It is difficult with such a surfeit of good matter to particularise any as the best. On photo-mechanical work we have articles by Husnik, Angerer, Albert, Volkmer, etc. Optics are treated of by Chapman Jones, Steinheil, Kiewning, Miethe, Soret, Rudolph, etc.; Schumann and Kayser discourse on spectro-photography; whilst Vogel, Vidal, summarise the extent of our researches in heliochromy; and Zenker gives a valuable paper on Lippmann's work. Numerous practical articles by well-known men are included, and we hope to condense a few notes from the articles.

The illustrations are as usual of exceptional merit, and we can heartily recommend the book to any German scholar.

Nouvelles Solutions du Probleme d'Altimetrie au Moyen des Regles Hypsometriques. By E. Monet. Published by Sociéte d'Editions Scientifiques, 4, Rue Antoine-Dubois, Paris. Price 1 fr. 50 c.

This little brochure is a treatise on what is, we believe, quite a new application of photography, viz., the determination of the altitude of objects from negatives and prints.

The book opens with a concise statement of the science of photogrammetry, and the laws of perspective on which it is founded. The rules and methods of finding the altitude of objects, and the small measures for this purpose. The work will be useful to architects and surveyors, and of general interest.

London of To-day. By Chas. Eyre Pascoe. Published by Hazell, Watson, and Viney, Ld., 1, Creed Lane, E.C. Price 3s. 6d.

There are numerous guide-books to London which are as dry as dust and uninteresting as they can be, and it is therefore a relief to come across one which is written in a bright, chatty vein, and illustrated with something a little better than the common or garden photograph taken a decade ago. Possibly it might be asked of what interest this book is to our readers; in the first place it will while away many a spare half hour; and, secondly, there are some valuable suggestions as to picture-making, not only in the text, but also in the drawings, which are clever and good, which goes without saying, as they are from the pen of Fred. Pegram.

Yorkshire's Pompeii. Published by W. T. Swain, Boroughbridge. Price 1s.

This book is a capitally written guide to Boroughbridge and the neighbourhood, which, as the author calls it, is the Yorkshire Pompeii, numerous Roman remains being found here. The whole district is a mine of wealth to the photographic tourist, and the above handbook is an interesting and well-written guide.

Catalogues.

Wm. Banks and Co., 32, Corporation Street, and 1, Lorne Street, Bolton. Price 3d.

A well-compiled price list of all photographic requisites, with an appendix on "How to Choose and Use a Photographic Outfit," which contains some useful hints.

Marlow Bros., of 28 and 30, Constitution Hill, Birmingham, forward us their price list of cameras, stands, lenses, and lamps, for which they have long been famous. The prices are reasonable and worth attention.

Morley and Cooper, 70, Upper Street, Islington.

This firm send us a small leaflet containing estimates for fifty different varieties of sets of their well-known cameras, varying in price from £5 to £13 for quarter-plate size, the others in proportion.

G. Wright and Co., Manchester Road, Hopwood, Lancashire.

This firm send us a price list and directions for use of their specialities, thiotone and noxinol.

Retouching.

By William Parry.*

I feel I must not begin to-night without offering a sort of apology for the brevity and the incomplete state of this paper. I would fain have got off altogether, but have not dared again to mention it to the Secretary, as he has already let me off once before. It was my intention to have prepared examples and slides to illustrate it, but I have really had no spare time to devote to slide-making, having been so fully occupied with business lately. On some future occasion I, hope to be able to give a more complete and comprehensive paper with lantern-slide illustrations.

Retouching is the art of improving or doctoring a negative or positive by the aid of a lead pencil, or by the use of a sable brush, and not, as a certain writer on so-called naturalistic photography would have it, when he says it is a process by which a good, bad, or indifferent photograph is converted into a bad drawing or painting. Now, I cannot agree with that in the slightest degree. I do not mean to say but that there are many instances where a good negative, without any retouching whatever, would give a finer print than if it were given into the hands of the most competent and experienced retoucher. Retouching, like many other things, is an operation which is very much abused, and has been overdone to an alarming extent. It has been said many times that some operators depend entirely on the skill of the retoucher, caring very little whether the subject is well or badly lighted, thinking all will be put right by the retouching. Now, this is perfect nonsense, for, unless a good and well-lighted negative is put into the retoucher's hands, all the skill and artistic knowledge he possesses will not enable him to make it into a perfect negative. Certainly a badly lighted and defective negative may be considerably improved by judicious retouching and careful printing. Some recommend thin and weak negatives as being the best; others again strong and denser ones; but from experience I find that the best results are got from negatives that are all round good, both in lighting and everything else. It is, no doubt, true that retouching—that is, a certain kind of the work—has done much harm to photography, and, unless the operator and retoucher work in harmony together, each striving to get the best possible results, the standard of retouching is considerably lowered.

Retouching is a branch of photography which an amateur does not often attempt. In working upon the negative with the pencil one of the greatest difficulties to amateurs and beginners is to be able to obtain texture, a process by which much time is generally wasted, and the result very often disappointing. He tries to get a good result, but without knowing how to go about it. I think amateurs are often much puzzled by a too elaborate description of how to do this and how to do that; whereas if the thing was put in a more practical form, many would be better able to accomplish more in the way of such operations as retouching and improving the printing qualities of their negatives generally, than they would with such impractical instructions.

It must not be supposed that retouching can be be learnt easily by taking a course of lessons, no more than drawing or painting can; it can only be attained by careful practice and experience, and the examination of good examples by first-class men. I just intend giving a few verbal instruction to amateurs present, which are in no way intended for any professionals who may be here to-night. The simplest method of all is the working on the back of the negative, and often a very great improvement can be made by doing so especially in the case of much heavy shadow and want of detail. There are various methods of preparing the back of the negative. A fine quality of tissue paper or, better still, an oiled paper called *papier minerale*, pasted carefully on the back, and, when quite dry, worked over lightly with the pencil on the parts that are too transparent, at the same time cutting out those parts that may be already too dense. I have seen a harsh printing negative yield a very good print after such treatment. This answers as well for a landscape as a portrait, and is what I frequently do in practice. If a negative is too weak and wanting in contrast, the high lights can very easily be strengthened by stronger lines with a soft pencil, or crayon can be used.

I believe, some years ago in America, the use of both black and red crayons was recommended for certain kinds of work, but I do not think with much success. Crayon powder is sometimes useful, but more difficult to work. I find, if there is only very little work required on the back of a negative, it is quite sufficient to give a light wash of madder brown in water colour, with a little gum added, on the glass itself. It may seem a difficult operation to spread an even wash of colour on glass; but it is not so, requiring very little practice, only the glass must be perfectly clean and the colour free from grit or dust. In a landscape clouds can sometimes be worked over a thin sky so as to be passable, but I would rather recommend blocking out the sky entirely and printing from a cloud negative. Working with a pencil on the film side is not such an easy matter for the beginner. For this a retouching desk is necessary, which is a piece of apparatus needing little or no explanation. It must have a piece of very finely ground glass, or the coarseness of the grain will be visible through the negative, and will confuse the retoucher. I also would explain that, if the negative be raised up from the ground glass to the extent of about an inch, leaving a little space between the negative and the glass, the grain is destroyed when the eyes are focussed on the part to be worked upon.

I may here give a word of caution with reference to the eyes. On no account practice retouching if your eyes are not strong or suited for it, as the injury done to weak eyesight by persistent retouching, with a strong light on them, is considerable. A good plan, if the eyes are weak, is to cover the reflecting mirror with white paper, which gives a very soft and pleasant light to work by, unless, of course, the day is dull. Some use a magnifying-glass for small heads, but that I don't recommend, as the point of the pencil is also magnified, and very awkward to use in consequence; the natural eyesight is preferable, if the eyes are stong enough to bear the strain. With regard to the surface for retouching upon, it is necessary to roughen or abrade the bright surface, so that the pencil will bite. There is great difference of opinion with regard to the proper kind of surface; some prefer using a matt varnish, others prefer rubbing the part with turpentine or powdered cuttlefish bone. There are many other methods of preparing the surface so as to give a tooth to the pencil. I have tried almost all, but cannot find anything better or simpler than powdered resin, applied to the part with the tip of the finger and dusted off with a flat camel's-hair brush. In the days of the collodion negative, a little very fine coal ash, rubbed on very carefully, gave an excellent surface for working on, but great care was required to avoid damaging the delicate film; with gelatine plates it is quite different, as it is surprising what an amount of rough handling they will stand without damage.

The pencils are an important item in the retoucher's outfit. The best for the purpose are either Faber's or Hardtmuth's; HB, HH, and F are the most suitable, although I have known four and six H's to be recommended, which is very absurd. The pencil must be sharpened to a fine point, and as it wears away quickly, it must be kept in condition by rubbing it gently on very fine emery cloth. The best way to use the emery cloth is to glue a narrow strip on a piece of flat wood.

In beginning work at the desk, sit in an upright position; do not bend or stoop over the work, do not look too closely at the negative, unless you are short-sighted; a far better effect is got by working at a little distance; you will find it more comfortable, and not so tiring.

Before commencing to retouch a head, it is advisable to take a rough print from it, although it is rarely done by the profession. Now comes the most difficult part, the actual retouching. If the negative has been properly lighted, a correct exposure, and carefully developed, the work will be quite easy, unless the subject is much marked with freckles, in which case it requires a certain amount of skill and patience to remove them. It will be best seen from an examination of the rough print what is required. Many spots and blemishes will be seen which really are in the subject's face, but considerably exaggerated in the photograph; to get rid of these and soften strong shadows, without in any way losing the likeness, is the work of the retoucher. Different faces require different treatment; old faces may be worked over without in any way altering the character, but still may be improved. Some faces are patchy, which it would be unwise to leave so; the patchiness must be removed, which will not affect the likeness, but will give a more pleasing expression Children's faces require very little work, unless much marked with freckles. In the faces of young ladies and gentlemen there should be no very strong lines or wrinkles. About the most difficult faces to do, to give satisfaction, are those of middle-aged ladies. The majority of lady customers say nothing about wanting to be flattered, but it seems to be an understood thing that the photographer is to do his best in that way. Of course, there are exceptions. One lady gave me special instructions to touch out all lines and wrinkles, and to make her look as youthful as possible. Only once, I think, have I been asked to do it, and only once have I been requested by a gentleman not to touch up his photograph at all—he wished to come out just as he was, as Oliver Cromwell said, warts and all. But I did touch him up, and he was perfectly satisfied.

When commencing a head, the better plan is to give it a general clean up, get rid of all the defects first, and soften shadows and lines that are too strongly marked. Do not fill in all shadows alike, or a flatness will be the result.

Rules cannot be laid down as to the movement of the pencil. Almost all workers have a different style of their own, some working with certain comma-like strokes; others, again, in small circles, in straight lines, in cross hatchings, and a variety of other ways. I prefer partly cross hatching and a sort of zigzag rubbing motion as being as good as any other. Delicacy and freedom of touch can only be acquired through practice and experience; strokes of the pencil should run in the direction of the muscles as much as possible. I remember many years ago, when retouching first came into general use, some of the heads done in the "Berlin" style, as it was then called, looked more like a person who had had a very bad attack of small-pox, so coarse was the grain on the face.

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* Read before the Newcastle-on-Tyne and Northern Counties Phot. Assoc.

There are many who condemn retouching altogether, and no wonder when we see such attempts as we often do in every-day work. Some faces are covered with white spots, others are like sand-paper; children, old men, and women are all made alike. Others, again, are in favour of it, and, I think, rightly so, many photographers using it only as a necessary continuation of good and careful work. I think a good retoucher is as useful a member of the photographic profession as any other, and I think, if amateurs would devote a little time to retouching, their negatives would be sometimes much improved by it. I now conclude with the hope that my paper has not proved too wearisome to the members here to-night.

At an Annual Exhibition.

By the Man about Town.

Twelve months have nearly elapsed since we, the members of the "Wangaloo Photographic Club," held our last exhibition, and now that the time for the annual display of our work is drawing nigh we are all bubbling over with suppressed excitement and expectation. The glorious days of summer, whose golden rays of sunshine have many a time and oft gladdened the photographic corners of our hearts, have slowly faded away; we have for a period to deny ourselves the pleasure of wandering afar in search of fields and pastures new, our only solace being the making of prints, when the weather permits, from our stock of negatives; for we must not forget the call made upon us by the approaching exhibition, and the fact that the committee expect that every man will do his duty.

The frame-makers who are patronised by us commence to brighten up considerably, and smiles of satisfaction overspread their countenances as orders roll in by the dozen.

An evening is arranged for the testing of lantern slides, in order that the members to whom they belong may observe their defects, and remedy them before sending the slides in for competition. Those who fancy themselves somewhat as lantern-slide manufacturers come to the meeting heavily laden with these transparencies—good, bad, and indifferent—which are subsequently put through the lantern and freely criticised; in fact, the respective slide-makers sometimes imagine the criticism is too free, and their dignity is hurt accordingly. Amusement is caused by the curious tones some have managed to obtain, the colours altogether being so varied that were a respectable Rainbow a member of the audience it would hide its diminished head for ever. How the little defects in the slides undiscovered by the unassisted eye are brought into prominence! the unfortunate possessors meanwhile bemoaning their fate at having to make fresh ones. There are one or two among us who evidently fancy they possess a "dark horse," having made up their minds not to produce specimens of their work until the last moment. An air of mystery prevails when they are questioned as to what they are going to exhibit, extremely vague hints being only vouchsafed.

A scene of great activity prevails on the eve of the exhibition in the hall in which it is to be held, a large number of the members of the committee and others being fully occupied in receiving from the hands of the competitors the numerous exhibits. The hum of eager conversation goes on unceasingly, speculation being rife as to who will to-morrow prove to be the lucky ones. The hanging of the pictures is a long and tedious operation, and is carried on far into the night, the grey light of dawn stealing in upon the jaded "hangmen" ere the finishing touches have been given.

The judges arrive in due course, and begin their tour of inspection. Upon their decision depends the fate of many an aspiring amateur, who has been dreaming in the night of obtaining a medal, and who approaches the vicinity of the exhibition on the opening night with a vague hope in his heart that his dream may possibly come true. Alas! his fond hopes will soon be ruthlessly dashed to the ground, for there up in that insignificant, out-of-the-way corner are his beloved prints unlabelled with that soul-inspiring inscription: "First prize—silver medal." When he recovers from this shock he will walk round the room and find out who are the successful competitors, and then critically examine the work displayed generally, meeting on the way a fellow-member, who has been equally unfortunate, the two condoling with one another and having a quiet grumble.

Several well-known makers have fitted up stalls with all kinds of photographic apparatus, and demonstrations of various processes are given throughout the evening. Fresh arrivals continue to pour in, and the place begins to get rather crowded. A short concert agreeably enlivens the proceedings, the comic singers, as usual, coming in for an ovation.

Then we have a lantern display, the winning slides being put through first, each set followed by a portrait of the lucky medallist. Whatever disappointment any of the unsuccessful ones may feel is dispelled by the vociferous cheering that they again and again indulge in when the name of a successful comrade is mentioned. "Bravo, Binks!" "Bravo, Spiffkins!" rend the air. One or two nervous old gentlemen complain of what they call unnecessary noise, but their complaint is passed over unheeded, and the applause is continued when a pretty view is shown on the screen. The heat from the lantern gradually tells upon the operator, he has grown red in the face and is perspiring furiously, and it is with a sigh of relief that he announces the appearance of the last batch of slides.

Many new faces and old are to be met with whilst the exhibition remains open. There are those crack amateurs from other Societies who compete in every open class, and who, of course, have come to see what has been their luck on the present occasion. The "Æsthetic Picture Merchant" may easily be distinguished as he meanders round with a far-away expression in his eyes, thinking deeply—not of the girl he left behind him—but of his eternal "pictures." The Press are also present, the photographic scribe walking about with the air of a man to whom photographic exhibitions are by no means an unmixed blessing, and when two scribes meet there is a languid shake of the hand and a muttered comment which sounds like "an awful lot of rubbish here," whilst his lay brother, like a fish out of water, is imploring the secretary, or some other official, to help him, for the love of heaven, out of his technical difficulties, and set him on the straight and narrow path. Even after he has received such assistance he sometimes gets his ideas mixed up ere he reaches the office of his paper.

On the last night of the exhibition the medals are awarded. The president of the society, who makes the award, does so in each case with a very flattering speech that does not fail to bring a modest blush to the cheek of the object of his remarks. The male portion of the audience cheer, the ladies sweetly smile and clap their hands as the various winners make their entry and exit. Some of the unlucky competitors who watch this interesting ceremony from a front row of the audience, register a solemn vow by the beard of their great-grandfather that when the next exhibition comes round they will make every effort to earn the honour of being rewarded in like manner for the work which they have done.

Through Devon and North Wales.

Lantern Lecture, by John A. Hodges.

Mr. John A. Hodges (President of the West London Photographic Society), on Monday evening, April 17th, before the members of the South London Photographic Society at Hanover Hall, Peckham, gave a lantern lecture illustrating visits he had paid to North Wales and Devonshire.

He had, he explained, originally intended to confine his remarks to North Wales, but unfortunately after lending some of his slides they had been returned in a damaged condition, and he was thus only able to show them that evening some of the scenery and objects of interest in that locality. He therefore proposed in the first place to take them to Devonshire and the borders of Somerset and to point out to them some of the places worthy of their attention as photographers.

Dunster (Somerset) presented one of the finest fields of which he knew for photographic work, and he highly recommended all lovers of the camera to visit this district. Passing to the village of *Selworthy*, some pretty cottages were shown, the lecturer stating that the owner of the village, Sir Thomas Acland, had devoted it to his old tenants, allowing them when they could work in the fields no longer to live rent free in these charming little cottages. The lecturer then showed a slide of a water-mill at work. He said he had obtained this result by means of a double exposure; he first of all photographed the mill as the wheel lay still, and then he thought the picture would be improved if the water could be shown; he immediately asked the miller to be kind enough to turn on the water, and he then gave his plate a second exposure by means of the shutter—about 1-20th of a second. Until recently everybody who visited the neighbourhood of *Porlock* was obliged to stop at the picturesque "Porlock Inn;" but the speculating builder has been at work, and when the lecturer was there last, about two years ago, he was grieved to find that one or two of the prettiest cottages had been pulled down and a very unsightly modern red-brick structure—it was called by some grand name—erected in their place.

Lynmouth was a most delightful place. There was only one other place, which was in Wales, which could at all compare with Lynmouth in point of beauty, *i.e.*, *Bettws-y-coed.* He was not sure that Lynmouth did not even bear off the palm, for in addition to its inland charms it possessed a grand sea coast. The prettiest walk in the neighbourhood of Lynmouth was four miles out as far as *Watersmeet*, a favourite spot with picnic parties. The camera did not do justice to these places. There was a very pretty fishing village called *Rockford*, at which there was a delightful little inn, where fishing tickets could be obtained, as well as a good lunch, with that delicacy only to be properly enjoyed in Devonshire, clotted cream, and he advised no one to leave Devonshire without tasting it.

A diversity of scenery was to be found near the Castle Rock at *Lynton*, a considerable distance from and in an elevated valley about 500 ft. above Lynmouth. When photographing from the beach at low water a building on the top of the hill proved a great eyesore and nuisance, and when making a print from this negative he invariably blocked the building out.

Ilfracombe was an entirely different place to those previously mentioned, being a very fashionable and lively place—a great deal too much so in summer, with the niggers, Punch and Judys, and donkeys, and, he was sorry to say, the Salvation Army band. He had no objection to the band, but he did not like the "music."

Another delightful and picturesque village, already probably familiar to them, having been rendered famous by Kingsley in his novel, "Two Years Ago," was the village of *Clovelly*. Old Clovelly Street was here shown upon the screen, in which the signboard of the "New Inn" could be plainly seen. The lecturer said it was an exceedingly old inn, as a matter of fact. The walls were literally lined with all sorts of valuable china, the landlady being a collector of that particular commodity, exceeding care on the part of those visiting the house being necessary to prevent serious damage being done. The street was exceedingly steep, fitted with steps made of logs of wood laid roughly into the ground. For all that, it was a most charming place to stay at. All of these places may be visited by staying at any one of them and going from place to place in one of the fine steamers which make daily excursions up and down the Bristol Channel. The Bristol Channel Packet Company granted visitors who were fond of the water a very great boon, viz., a season ticket, which for almost a nominal sum—about a guinea—allowed the holder to go up and down the Channel any day throughout the season; up as far as Lundy and down as far as Bristol.

The lecturer then said that he need not remind the members of the South London Photographic Society that it was not necessary to go all this way from home in order to obtain pictures. Many delightful scenes and beautiful country were to be found very much nearer home. He illustrated his remarks by showing some views taken within a radius of twenty miles of the great metropolis. Views of Hampton Court, of hoar frost on trees taken in Kew Gardens in 1890, Chiswick, Burnham Beeches, Stoke Poges, and Strand-on-the-Green, near Kew, were then thrown on the screen, as well as several good figure studies, which he stated he submitted with fear and trembling, as he never posed as a figure photographer.

Some excellent slides of Haddon Hall were then shown. Haddon was a most delightful spot to spend a holiday at. The photographer—and very rarely this was so—was at a distinct advantage. For a small fee of 2s. he was allowed the keys to all the doors of the Hall, and was thus able to obtain admission to any room in the house, lock himself in, and expose his plates to his heart's content.

The attractions of the *Vale of Llangollen and Dolgelly* having been commented upon, the lecturer said he supposed every photographer had a leaning toward a particular class of subject. He confessed he had; he was exceedingly fond of views in which foliage predominated. He had taken a good many of such photographs, and it might be interesting to some of the less experienced to know that he believed the secret of success in this class of work was *long exposure.* As an example a view was shown that had had two minutes' exposure at *f*/22, the sun at the time (as was seen by the shadows) shining brightly, experience, however, proving that the exposure was not a bit too long.

To those persons who had not very much time at their disposal, and did not care to rush about from place to place too quickly, but liked to take views leisurely and yet see a great deal, he would recommend *Barmouth.* It was a capital centre, and anyone could radiate in many directions from it and see in a week or fortnight spent there a good deal of the most beautiful scenery in Wales. The Cambrian Railway ran round the coast and afforded excellent facilities for getting about. Combined coach and railway tickets could be obtained, and on leaving the station and showing the ticket to any of the flymen round about, the visitor would be taken for a charming drive to some well-known spot for the same money.

Bettws-y-Coed was next shown. He need scarcely say that this was a most delightful place and a favourite one with both photographer and painter.

Pont-y-pant Bridge likewise attracted large numbers of lovers of the camera, and the lecturer had the curiosity to count the number of photographers who "took" that bridge in the space of one hour during a day in the last week of September, 1892, and he found that they amounted to no less than *thirty!* The bridge survived, and it would survive a good deal more.

Fairy Glen was equally well known, and in the holiday season it was crowded with tourists and general holiday makers; and it has become the fashion to run it down on that account. It was very much overdone from a photographer's and artist's point of view, but still it was one of the most lovely pieces of ravine and scenery of which he knew.

An interior of *Llanrwst* Chapel being shown, he stated that special permission was necessary to photograph it, which he was unable to obtain. Permission to photograph the interior of the church was freely given. The authorities, however, happened to leave the door of the chapel open, and he preferred to take a view of the interior of the chapel to that of the church.

Conway was now approached. It was celebrated for its old castle and that masterpiece of engineering, the tubular bridge, which he believed was the first bridge of the kind constructed in Wales. Although very useful, it was extremely unsightly, and spoilt the picturesque view looking at the river Conway. Conway itself contained many old historic houses, which were interesting, both from age and association, to the architectural photographer.

After showing views of *Aber* and the suspension bridge over the *Menai Straits*, he concluded by stating that he had used Edwards's isochromatic films with great satisfaction on his trip to Wales.

In acknowledging a vote of thanks he advised the members of the South London Photographic Society to arrange to have occasional Saturday afternoon outings in company with the members of other societies. Such an arrangement he considered would be mutually advantageous.

Photographic Societies.

By R. Hyslopian Machus.

Recognising the difficulty in writing anything entirely new nowadays in the photographic connection, I should like to say a word or two and express an opinion or two on the subject of photographic societies, a theme which has not been quite so well thrashed out at the hands of the photographic press and elsewhere as most of the other branches of our noble art-science.

All over the country photographic associations are very much *en evidence* just now, and their number is increasing at a rapid rate. Every town of any size or importance whatever, if it can boast of a requisite number of amateurs, must have its photographic society. But, alas! how many of these institutions which were inaugurated, say, three or four years ago are in existence now, and how many which may start in life in 1893 will be likely to witness the light of day in the year '97? The reason why some associations live enthusiastically for a short while and then collapse is, in my humble opinion, want of foresight on the part of the promoters.

Those who take upon themselves the responsibility of inaugurating a society should well consider what they purpose doing before putting their ideas into practical shape.

The foremost thoughts should be, "Will a society for the promotion of photography be likely to succeed in this place; is there a sufficient number of amateurs (or professionals) in the locality to keep the concern going, and *are they of the proper sort?*" And, lastly, and most importantly, "Are there any thoroughly experienced workers in our midst?" for without them no society can ever perform its true functions. However, let us suppose these and other considerations have been taken into account, and that it has been resolved to form a photographic association. An association of this kind may be considered to stand upon a fairly firm basis, and it now only wants method and earnest working to make it a thriving and long-living concern.

A club or an association positively cannot exist for a period of time exceeding two or three seasons unless it is worked systematically. It may be contended that a society of any "sort or condition" cannot succeed if the members will not turn out at its meetings.

So far so good; but this lack in the membership, or rather attending membership, can nearly always be traced to deficient management. For what association cannot progress favourably which has an influential list of honorary members, an earnest and interested president, an energetic committee, and, most important of all, an enthusiastic and persevering secretary, all of whom can, *and do*, attend thoroughly to their respective duties and take all pains possible at the beginning of each session in the formation of a substantial and varied—therefore attractive—programme of excursions, essays, demonstrations, etc? The evening meetings, be they fortnightly or monthly, should be carried out in a regular and businesslike fashion. The writer once attended a meeting of a society (not photographic), and the following is something like the slip-shod manner in which it was conducted. The president was absent—a member was voted to the chair. He began (very nervously): "Mr. Chair—er—I—I—mean—Ladies and Gentlemen, —You know—yes, I'm sure you know what I say when I mean—I mean, you say you know what I mean——" and so on. At this point, however, a meek, harmless, but dutiful member asked if it was not in order that the minutes of last meeting should be read before proceeding further.

"It is so," replied the chairman in a dignified manner, "Mr. Secretary, will you kindly oblige us with the minutes of last meeting?" The secretary, in a back seat, coloured up from his chin to the roots of his black hair, and his fingers shook visibly as he fumbled through all his pockets in vain for the minutes.

He at length got on to his feet, his face was red and white alternately, and in one woe-begone gasp exclaimed, "Mr. Gentlemen, ladies, and Chairman,—I really think I must have come away without them—or rather, I'm not quite sure if they were ever written—but I'il now go home and see." He did not go, and the matter rested where it was. But the best of it all was, that this obviously new and not over-scrupulous Secretary inserted in the local newspaper that "after the preliminary business had been transacted, the Chairman, Mr. ——, in his usual eloquent style and choice selection of English, called upon the essayist," etc., etc.

This picture may be a shade too highly coloured—or retouched (seeing this is a photographic effusion)—but it shows what a mess want of method puts meetings into.

If a lantern show is to form the evening's entertainment and instruction, the slides should all be of good technical and artistic quality. Every slide thrown upon the screen should be accompanied by a racy and appropriate description, spoken by a competent lecturer. I may be allowed, perhaps, to quote another example in this connection.

At a lantern lecture which I recently attended, the lecturer at one stage of his paper intimated that he would "now relate the following touching story" regarding an old ruined castle in the neighbourhood. When he was doing so, "the lanternist would show upon the screen a number of miscellaneous views." The result was ludicrous in the extreme. The pictures—during his sad narrative—were decidedly humorous, but the worst had yet to come. The lecturer finished with something to this effect: "Yes, it is a very sad tale, for no sooner had the beautiful, blue-eyed young princess, who was to be married on the morrow, arrived at the castle than she was seized upon by her traitorous servants and foully murdered," etc., etc.

Just as the handkerchief was being applied to the tearful optics of several old "bodies," and as the lecturer was beginning to laud himself on the control he had over his hearers by his dramatic eloquence, a picture appeared upon the screen representing an old Irish "hussy" belabouring her husband with a thick shillelah. The effect upon audience and lecturer was comical to behold. The former roared with laughter at the picture, and the latter roared with anger at the operator to "turn off the gas at once, please."

Though this incident was amusing, it was simply ridiculous, in that it completely spoiled the touching narrative which, doubtless, the lecturer well rehearsed beforehand in order that it might have the desired effect.

Moral.—Have slides to suit the lecture, and lecture to suit the slides.

I shall conclude this little article by recommending all amateur photographers, who have it in their power, to connect themselves with a society which has for its purpose the advancement of photography, so that they may see and criticise each other's work and benefit thereby.

Reader,—if you are an office-bearer, do all in your power to keep your association in a flourishing condition, and you ought to be amply repaid for your trouble by having enjoyable and well-attended meetings for many seasons, and the goodwill of the happy circle of photographic friends around you.

Surely, if the office-bearers "press the button," the members will do the rest.

* * *

The pictures by Mr. Warneuke, of Glasgow, which gained the gold medal at the Crystal Palace Exhibition were taken direct with a Taylor, Taylor, and Hobson's group and portrait lens, and speak volumes in favour of these instruments.

Schwarz's Agents.—Messrs. Southall Bros. and Barclay, of Birmingham; Percy Lund and Co., Bradford; and A. Baird, of Lothian Street, Edinburgh, have been appointed agents for Dr. Andresen's developers and chemicals.

Photogravure: or, Photographic Etching on Copper.

By Mr. Denison.

(*Concluded from page* 288.)

The temperature of the etching solutions greatly affects the rate at which the etching proceeds; it is therefore advisable always to use them at the same temperature, say 70° Fahrenheit.

The solution as it is drawn off will be found to register between 43° and 45° on Baume's scale. A portion of it can be evaporated down to form solution No. 1 at 45°, and water can be added in order to obtain the four other strengths. The strength of the solutions can be ascertained by filling a tall jar with the solution and testing it with Baume's hydrometer for heavy liquids. It is as well to give all the solutions a few minutes' boiling, as it tends to make them more transparent, and the progress of etching can be more readily observed under them when etching the plate.

Cleaning the Plate.—The plate having been etched, it is removed from the last etching solution and quickly washed under a tap, rubbing the film with the fingers until it has been removed from the plate. This will be found quite easy to do, as the film appears to have become rotten under the action of the perchloride of iron. After drying the plate, the black varnish is removed from the margin and back with a pad of cotton wool moistened in benzole, and the benzole at the same time removes the ground from the plate. Another pad of cotton wool is then taken, a small quantity of spirits of turpentine is poured upon the plate, and the plate is again rubbed. After drying, the plate is further cleaned with cotton wool moistened in methylated spirits and dried, and the final polishing is given with the washed whiting and 5 per cent. solution of ammonia, which I have previously mentioned, the plate being gently rubbed with a circular motion, left to dry, and then the whiting having been rubbed off with a dry piece of cotton wool, the plate is ready for printing.

Making Corrections.—The next thing to be done is to pull a proof from the plate with a view to see what corrections are necessary; any portions of the high lights which have been etched too deeply may be reduced by burnishing with a steel burnisher; any other faults, such as those caused by spotting out pin-holes, may be filled in by an instrument called an etching needle, or dry point, and portions which print too light may be strengthened with a roulette. This is a little wheel with a serrated edge, set into a handle something like a penholder. As this wheel is drawn over the surface of the copper, the teeth cause small indentations in the plate which, if the work is skilfully done, fairly match the bitten portions. If the plate generally has not been etched sufficiently, the remedy is to re-etch the plate, and this is done by rolling-up the plate with a gelatine-roller, using a special ink composed of—spermaceti, 14 oz.; stearine, $6\frac{1}{2}$ oz.; white wax, 6 oz.; asphaltum, $2\frac{1}{4}$ oz. The asphaltum is first melted and the other ingredients added gradually. This is mixed with an equal quantity of lithographic ink and made thin enough for use with turpentine. After rolling-up, the plate is slightly warmed and then re-etched with a solution of perchloride at 40 deg. I am of opinion, however, that if a plate needs much retouching, it is far better to commence afresh than to spend much time in doctoring the plate by any of these methods; they are at the best poor substitutes for original work, and they require considerable skill and experience to carry them out properly.

I described last week in a general way the method of printing the plate, and as this evening, through the kindness of the well-known copperplate printers, Messrs. Brooker and Co., of 78, Margaret Street West, we have the advantage of the presence of their foreman printer, I do not think it necessary to say anything more on this subject Mr. Reardon will demonstrate to you the printing, and I am sure you will learn more from seeing him do the work than from any verbal description I could give you. The only matter that now remains for me to bring before you is the

Steel-Facing.—I have no personal experience of the process, but through the kindness of Mr. Wilmer and the permission of Mr. Howard Farmer, of the Polytechnic Institution, from whom the information was obtained, I am able to give you details which will, I think, enable you to do your own steel-facing. Up to the present time I have had my plates steel-faced for me.

From an amateur's point of view I am not at all sure that steel-facing is advantageous. A plate without steel-facing will stand about twenty or twenty-five impressions, and these are as many as one usually requires. At any rate, it is sometimes convenient to be able to give as a reason for ceasing further distribution of prints, the wearing out of the plate.

A wooden box is required to hold the steel-facing solution; a box for plates 12 by 10 should measure 24 by 12 by 20 deep. Brass rods run the whole length of the bath, and from them are suspended the copperplate and a plate of iron measuring 22 by 18, and a quarter of an inch thick, face to face.

The solution in the trough is composed of one pound of sal ammoniac and one gallon of water.

The electricity is supplied by a battery consisting of a stick of carbon in a porous cell, this cell being surrounded with a plate of zinc, the whole being contained in an earthenware jar.

In the outer cell is sulphuric acid of the strength of 1 pint to 10 of water, and in the inner cell is bichromate of potash, 3 oz. to 20 of water. The rod from which the iron plate is suspended is connected with the carbon anode, that supporting the copper, with the cathode (zinc). The current is allowed to pass through the trough for two days before it is ready for work.

The plate must be cleaned very carefully before steel-facing. First clean with turpentine and a nail-brush, then with benzole and rinse under the tap; it is now put into a strong solution of caustic potash, 1 lb to 10 pints of water and left for half an hour. The plate is further rubbed and cleaned alternately with nitric acid, one to twenty, and with whiting and water, and these operations are repeated until the plate is chemically clean.

The plate is cleaned at the back, and a piece of copper wire is soldered on, and by this the plate is attached to one of the brass rods opposite the plate of iron. The plate is moved up and down in the solution and examined occasionally. A sufficiently thick coating will be obtained in about half an hour.

The Intensification of Gelatine Dry Plates and the Employment of Bromo-Iodide of Copper.

By Dr. W. H. Jenney.

WHERE increase in density is desirable, intensification now forms a regular step in the procedure of many photographic processes. In the portrait gallery it is seldom employed, but in out-door work and in the photographing of dimly lighted interiors the negatives may often be greatly improved by intensification.

In some way the belief has crept into the teachings of photography that intensification is a remedy specially adapted to cure the defects of under-exposure. Yet how seldom can it be successfully applied to the numerous cases of under-timing occurring in practice. The effect of intensification is to increase the contrasts of light and shade, the very qualities that appear in the highest degree in under-exposed plates. No after-treatment of the developed negative can replace the action of light and produce a successful picture where the exposure given has been greatly inadequate. With under-timed plates that have received sufficient exposure to enable, without forcing, all desired detail to be brought out on development, yet producing negatives lacking in density and printing quality, intensification is a benefit. It is, however, with over-exposures, where detail is in excess and the contrasts are weak, that intensification is of the greatest use.

In the usual procedure dry plates are intensified after fixing and washing. It is requisite that every trace of the hyposulphites of silver and soda derived from the fixing bath should be removed from the film, otherwise most annoying stains result during the progress of the intensification. This can be done by a thorough fixing of the negative in fresh hypo, followed by a prolonged washing. To ensure the destruction of any hypo remaining, the negative, after fixing and washing, is immersed for five minutes in a saturated solution of alum and again washed in a stream of water for a quarter of an hour.

The writer has successfully employed a solution of bromo-iodide of copper in intensification prepared as follows:

Sulphate of copper	200 gr.
Water	6 oz.

To this solution is added, with constant stirring—

Iodide of potash	16 gr.
Bromide of potash	40 gr.
Water	2 oz.

A slight precipitate of iodide of copper of a deep yellow colour forms. It is allowed to subside, and the clear solution decanted for use.

To Intensify.—The negative, if dry, is soaked in water until the film is thoroughly wet, then immersed in a developing tray in a sufficient quantity of the above solution of bromo-iodide of copper to just cover the plate, and exposed to direct sunlight or strong diffused daylight. The film rapidly bleaches and becomes a canary yellow colour; the action is continued until the bleaching is uniform over the plate and the shadows viewed by transmitted light are clear and transparent, the operation usually requiring five to fifteen minutes.

The negative is removed from the copper solution and washed for a quarter of an hour in a stream of cold water. The intensifying solution may be used repeatedly, and, if necessary, may be strengthened by the addition of a few drops of a solution of 1 part iodide and 3 parts of bromide of potassium in 100 parts of water.

The bleached negative may be darkened by a strong solution of sulphite of soda in which a few grains of nitrate of silver are dissolved. Superior results are obtained by development with hydroquinone. Any of the published formulas, or the hydroquinone developers sold ready for use, may be employed. Old developer answers the purpose well, even after repeated use.

The colour of the resulting negative is strongly affected by the composition of the developer. With Seed's hydroquinone developer, light brown to sepia shades are produced. Eikonogen does not appear to work well; rodinal gives brown to dark iron-grey shades.

The following formula produces beautiful rose-red and claret shades:

Hydroquinone	90 gr.
Sulphite of soda (crystals)	1 oz.
Carbonate of soda (granular)	¼ oz.
Bromide of potash	6 gr.
Water	8 oz.

By varying the proportion of hydroquinone and sulphite of soda, fine shades of sepia, dark brown, and iron black are developed.

The development may be conducted in strong daylight; the action, however, is more quickly accomplished by full exposure to sunlight.

The negative is placed in a developing tray with a sheet of white paper beneath it, to accelerate by reflection the action of the light. Just enough of the developer is added to cover the plate; the tray is exposed to bright sunlight and rocked, to prevent unequal darkening. The action of the developer is continued until the desired shade is obtained, when the negative is then thoroughly washed in a stream of running water and dried.

Experience has shown that negatives thus intensified are unaffected by exposure to light and apparently undergo no greater deterioration by action of time than those that have not been subjected to intensification.

The action of the bromo-iodide of copper upon the gelatine film probably results in the liberation of iodine and the formation of a double iodide of copper and silver. In testing this process of intensification upon bromide prints, the picture bleaches, and the paper turns a deep blue colour from the formation of iodide of starch. Upon the immersion in the hydroquinone developer the blue colour disappears and the picture develops a sepia shade.

From the great variety of rose-red, claret and sepia shades produced by different developers, it is probable that this method of intensification will give results of value in lantern-slide work.—*Anthony's Bulletin.*

Dry Plate Making at Home.

By R. Child Bayley.

(Continued from page 283.)

MIXING AND COOKING THE EMULSION.

IT will be found by far the better plan to thoroughly master the manufacture of a slow plate before attempting to do anything in the way of rapidity; and for that reason it is proposed to describe in detail the process of making a plate which permits of a fair amount of orange light being used, the resulting emulsion requiring about twice to three times the exposure of an Ilford ordinary. It will be seen that iodide as well as bromide of potassium is used, yielding what is known as a bromo-iodide plate, a combination first recommended by Captain Abney, to whom, indeed, the formula given below is due.

Before darkening the room it is a good plan to weigh and measure out the various substances required, which is done much better in a good light. With a clean piece of paper in each scale pan, weigh out as accurately as possible 175 gr. of recrystallized silver nitrate, place it in a test tube, cover it with half an ounce of water, and heat the tube until all the salt is dissolved. In another test tube dissolve 5 gr. of potassium iodide in 1 drachm of water; this does not require hea.t

Place 30 gr. of Nelson's No. 1 gelatine in a beaker, cover it with water, swill it round once or twice, and pour as much of the water away as possible; this is done to remove dust and mechanical impurities. Pour over the gelatine 1oz. of water, and put it aside, covered over, to swell. In the other beaker 180 gr. of Nelson's No. 1 gelatine and 60 gr. of Heinrich's gelatine should be rinsed in the same way, and put aside to swell in 2 oz. of water. This can be stood out of the way, as it will not be required for an hour or so, and the Heinrich's gelatine requires time to swell.

It will be found to greatly facilitate weighing if the gelatine be cut up as finely as possible with a pair of stout scissors; without doing this it is almost impossible to weigh any quantity of Nelson's gelatine in the ordinary scales. It will not be found of any advantage to use distilled water for the foregoing, unless there is a good supply of it so that it can be used for washing the emulsion as well. With ordinary water there will be found to be a slight white precipitate in the silver nitrate solution, which can be disregarded.

In the 2 oz. measure is now placed 135 gr. of potassium bromide dissolved in $1\frac{1}{2}$ ounces of water. To this should be added one drop of hydrochloric acid and 3 drachms of the preparation sold by the druggists as tincture of iodine.

As soon as the first-mentioned gelatine is found to have absorbed the water in which it was swelling, the beaker containing it can be placed in warm water (about 120° Fahr.), when it will soon melt.

When this has taken place the room must be darkened and all subsequent prooceedings performed in non-actinic light.

The melted gelatine should be poured into a pint or larger bottle, which should previously have been warmed by standing in warm water for a minute or two, the silver nitrate solution added to it, and the whole well shaken up into a froth. The bromide solution, which with the tincture of iodine should be of a deep sherry colour, is now added two or three drops at a time, shaking well for half a minute between each addition, until three-fourths of the bromide solution has been added. When this is the case, the potassium iodide in the test-tube may be added in the same way, and then the remainder of the bromide. The whole should then be well shaken for at least a couple of minutes.

We now have in the bottle a solution of gelatine to which has been added silver nitrate and potassium bromide and iodide, and it will have been noticed that on the addition of the latter the liquid at once assumed a creamy appearance. This was due to a reaction which took place between the bromide and iodide and the silver nitrate, resulting in the formation of silver bromide and iodide, yellowish white insoluble salts which suspended in the gelatine have given it its milky appearance. The bromide which was associated with potassium as potassium bromide has left that body and combined with the silver, and at the same time the nitric acid with which the latter was associated has passed over to the potassium; the iodide behaving in exactly the same way; so that not only is there in the emulsion, silver bromide an insoluble salt, but potassium nitrate which is soluble. This latter would crystallize out in the film if the emulsion was used in its present condition, besides rendering it very much less sensitive. To prevent this by getting rid of the potassium nitrate, recourse is had to the process of washing, which will be described later on.

At this stage it is convenient to examine the emulsion to see as far as posible whether the mixture has been properly effected; for this purpose a drop of it is placed on a clean glass plate and taken out of the dark-room. On viewing the flame of a candle or gas jet through it, it should appear of a ruby or orange colour, and no grain whatever should be visible to the naked eye. Should this not be the case, and the film appear greyish, it may be assumed at once that the mixture has not been properly carried out, and that either the bromide has been added too quickly and without sufficient agitation, or that the gelatine solution has been too hot and liquid. There is no satisfactory remedy for a blueish or grey emulsion at this stage, but, on the other hand, there is no reason why, the directions given above having been carefully followed, it should have resulted. Should the emulsion have an orange or ruby colour when viewed as above, it may be assumed that the foregoing operations have been successfully carried out, and it is ready for *cooking*.

For this purpose the bottle containing it should have a loop or string securely tied by its neck and be hung in the saucepan, an inch or so off the bottom, by holding the loop over the edges of the latter and putting the lid on firmly, the saucepan having previously been half filled with hot water, and the cork removed from the bottle. The saucepan is then placed on the stove and the water raised to boiling point. There is no necessity to allow it to boil violently, which might possibly blow the lid off and allow the bottle to go under the water; if it is just simmering gently it will do as well. After it has been boiled for a quarter of an hour the bottle can be taken out, corked, wrapped in a cloth, and, taking care to hold the cork which would otherwise be blown out, well shaken for half a minute. A drop of emulsion can be put on a piece of glass with the cork and be examined as before. It will be found, if all is going well, to be still of an orange colour, and can be boiled again for another quarter of an hour, when it is again taken out and shaken. By this time the emulsion should have lost its original ruby or orange tint by transmitted light, and should appear of a greyish violet, indicating that it has been sufficiently boiled. If this is not the case it can be returned to the saucepan and boiled again for five minutes at a time, well shaking it and examining a drop each time until the desired change has fully taken place.

The cooking having been accomplished the bottle containing the emulsion can be stood in tepid and then in cold water to cool as rapidly as possible. If put directly into cold water there is a danger of smashing the bottle and of the consequent loss of its contents. While this cooling is taking place, the second lot of gelatine which has been in soak up till now can be stood in warm water until it is quite melted (it will be found that the Heinrich's gelatine will take longer to melt than Nelson's), and when this is done both it and the emulsion should be cooled to 80° Fahr. which should be carefully ascertained by means of the thermometer. When that temperature is reached the gelatine should be poured into the bottle containing the emulsion, which is then well shaken for at least a minute, to thoroughly incorporate the fresh gelatine with the other. The bottle must now be emptied into a jam pot or beaker, which may be stood in cold water until its contents have assumed the appearance of a firm jelly.

WASHING.

While the emulsion is setting which will take in the present weather about an hour and a half, all necessary preparations can be made for washing. For this purpose a clean cloth—a handkerchief answers admirably—should be laid in the bottom of a basin, with its edges hung over those of the latter, which is then filled with water. A sheet of clean paper is laid upon the bench, and on this is spread the canvas, in the middle of which is placed the lump of solidified emulsion, which can be removed from the beaker for the purpose by a strip of glass or a *silver* spoon. The edges of the canvas are gathered up enclosing the ball of emulsion. This must now be firmly held in one hand below the surface of the water in the basin, and with the other the emulsion forced through the meshes of the canvas in long strips, which will sink to the bottom of the water. When there is no more left in the canvas, the cloth, which will now contain the emulsion, can be raised by its edges and the water allowed to drain out of it, a process which will be greatly assisted by twisting it up into a ball and squeezing it. The cloth is laid in the empty basin and fresh water poured on to its contents; it should be allowed to remain in this a quarter of an hour, then squeezed again and the water changed. This operation if repeated three times at intervals of a quarter of an hour between each should suffice to rid the gelatine of the soluble potassium nitrate.

The cloth is then once more well squeezed, when the ball of emulsion it contains can be tied up in it and hung in a beaker to drain. Should the foregoing operations be carried on during an evening, which can very well be the case since they should not take more than three or four hours, this will be found the best point at which they can be broken off, leaving little but the coating of the plates for the following evening's work. If this is the case, the beaker in which the emulsion is draining can be put into a box where no light can have access to it, and put on one side. It is not advisable, however, to leave it more than 48 hours at the outside, or decomposition will be set up and fog occur.

(*To be continued.*)

The Influence of the Hand-Camera.*

By W. D. Welford.

The spirit of exaggeration is one of the necessary evils attending the development of photographic civilisation. For years hand-camera workers have been pushing to the front, and striving to make the general photographic public decent and respectably minded citizens. But the dawn of reason has only just arrived, and, though tardily admitted, the *raison-d'etre* of the hand-camera is now recognised. It is possible for the veriest fanatic to now address an ordinary society upon what, in his opinion, are the points of hand-camera work, that is, he can now do without the sneers and quiet scoffs of the old-timers. So that, in venturing to address myself to the decent and respectably minded body of men that compose the London and Provincial Association, I feel that, whatever the criticism may be, it will be just and generous. Above all things, I am sure you will fight, when the time comes, with interest in, and appreciation of, the hand-camera itself. The battle hitherto has been between a small body of earnest men determined to advance, whilst opposed to them were thousands of skirmishers, who were too busy with other things to pay much attention to the invading force. The battle cry of one was, "We are here, and we've come to stay," answered impatiently by the skirmishers, "Tut, tut! run away, little boys, and play," or, "Bother those folks, what can they do? what rubbish to trouble us!" The first sign of the dawn of reason I detected some time ago, when I heard that a member of the London and Provincial Association had actually agreed to look at a hand-camera, and it was thought to be a reasonable supposition, that, ere long, he might actually handle the monstrosity. And now—well,

---

* Read before the London and Provincial Photographic Association.

> "Do I dream, do I doubt,
> Or is visions about?"

Of course I mean *visions* of hand-cameras. I hope you will correct me if I am wrong, but I believe you actually have men now who *use* a hand-camera. What has happened to the poor London and Provincial Association? Has it been having too much "spirits" of late?

I said at the commencement that exaggeration is necessary nowa-days. If a man wants to sell his camera, he asks £5 10s. for it, so that he can get £4 10s. by "reduction in the camera." You may perchance imagine I am on the same tack, that I am claiming (or, rather, shall claim directly) a good deal too much for the influence of the hand-camera, so that I can climb down a little to appease your wrath, and yet get pretty well all I wanted to. Personally, by the conviction of experience, I believe all I say. You may not—that is your fault. In a few years' time they will be accepted as facts.

The influences of the hand-camera run in several directions. For convenience sake I have classified them into two—

Photographic,
Mental or physical.

By an "influence of the hand-camera" I mean some power or incentive towards improvement, in which the hand-camera has been the sole—or, at least, principal factor. To make a definite start thereto, I claim that it has been of considerable use in improving photographic materials, apparatus, etc.

Speed of Plates.—Much interest has of late centered round the great efforts of some of our platemakers to obtain the maximum rapidity of emulsion. The makers would hardly do this unless to supply a want; that must be admitted. The point is, from what does the demand spring? I allege from the hand-camera. But it may be said, instantaneous photography in the ordinary camera must not be overlooked. Certainly not, nor the fact that the reduction of exposure in a studio of portraiture, especially baby and child studies, for dimly lighted interiors, and for portraiture by artificial light, is a convenience the desirability of attainment of which, no doubt, has helped in the same direction. There are possibly other causes which I have not enumerated. I admit their power, but deny their importance as compared with the requirements of the hand-camera worker. You may mass all these factors in a lump, and still the hand-camera towers above that lump as a mountain to a mole-hill. The increased speed of plates is due to the hand-camera, and, whatever weight other considerations may have added, they have only been as a single black pin is to a full box of white. It is there certainly, but it does not make us buy the box. If there be any gain to photographers by the increase of plate speed, to the hand-camera the credit must be placed.

Apparatus.—In several directions the influence may be seen. In order to diminish the enormous disparity in bulk and weight between the ordinary and the hand cameras, the former have been cut down in every possible direction. A hand-camera worker grumbles at the unnecessary weight of his 10 by 8 ordinary. Result, improvements and new patents galore. The necessity of reducing the shutter to small dimensions, in order to go inside the limited space of a modern hand-camera, has brought upon the market a number of small and ingenious shutters. Possibly some of these and other improvements in apparatus, such as lighter tripods, dark slides, and the use of aluminium, would have arrived in due course. But we've got them *now*, and the hand-camera did it.

Small Work.—Although it cannot yet be said that the day of small work has arrived, yet I claim that we are now appreciating quarter-plate prints very much more than we did. This has been a gradual growth truly, but a *resumé* of exhibitions during, say, the last two years would certainly prove the existence of the growth. In the old days the reports were something like this: "Mr. Blank shows a frame of snap-shots, which, as such, are very good." "As such," indeed; that is where the blind bigotry crept to the front. It was usual in those days to term them "snap-shots." Never mind if evidences of composition, careful treatment, and individuality were visible in the prints—that did not matter. They were snap-shots—no more, no—well, I cannot say no less, as no further degradation of photography could be, they imagined. They were taken in a hand-camera, and that damned them for all time. But now—they are snap-shots no longer, but prints the same as the rest. The influence has carried us toward the recognition of merit in the smaller sizes of prints, so much so that ordinary quarter-plate and 5 by 4 are constantly represented.

I'll admit that we have not yet reached rock bottom on this question, for, undoubtedly, small work does not receive its full meed of recognition; nor can it be said that hand-camera work is yet free from enemies. Even now, some puffed up, unmitigated egotist of the high-art school waxes wroth occasionally, and provides padding for one of the photographic publications. He is usually one of those to whom photography must mean "art" or nothing. Well, we hand-camera workers do not suffer very much; I presume we have the proverbial duck's back. Anyway, Mrs. Artist Partington has no broom capable of keeping back the tide of the hand-camera. Personally, I consider any man, who believes that photography is entirely concerned with art, science, or, indeed, any *one* branch, to the exclusion of every other, may safely be written down an ass. Hobbies may be ridden to the death, but they must not be allowed to order all others off the road.

Increase of Photographers.—Another very powerful influence is that of increasing the number of photographers. I don't think it can be denied that the principle of "You press the button we do the rest," has increased the number of workers considerably. Many hundreds of the outside public, whom the very mention of a camera, tripod, lens, etc., would have frightened into fits, have bought a hand-camera, to do "button-pressing" for themselves. Many of these must have been seduced into our ranks; for the step, from having "the rest" done by some one else to the doing of it themselves, was one of the easiest transition. Upon this point let me not be misunderstood. I cannot claim that all the "button pressers" have become photographers (this is a terse way of putting it), but certainly a good many have been so pleased with their new hobby that they *have* made the plunge.

Better Posing of Figures.—This is another influence I claim. Of course, I know full well that all good photographers pay, and have paid, every attention to this matter; but my point is that the hand camera has stimulated effort in the same direction amongst the lesser workers. Let us suppose a case, of Smith, a half or whole plate man, and his friend Brown, a snap-shot man. Smith is a careful worker of several years' experience, whilst Brown is but a beginner. Upon a comparison of results, Smith finds in all his pictures there is too much staring at the camera if he introduces figures in the scene. He finds in Brown's shots, poor though they may be either artistically or technically, that, at all events, every one is not rooted to the spot, looking at the camera, and having the appearance of plaster-of-Paris images plumped down into the landscape, wishing they hadn't come, and wondering how they are going to get out. He takes the lesson to heart, and improvement in this respect follows. I am not saying this without authority, for I have seen the change in the work of many of my friends.

(*To be continued.*)

* * *

Exhibitions.

PHOT. SOC. PHILADELPHIA.

THE Board of Judges appointed by the Exhibition Committee of the Photographic Society of Philadelphia to award silver medals for the best exhibits of artistic, technical, and scientific photography shown at the sixth annual exhibition, held under agreement between the Photographic Society of Philadelphia, the Society of Amateur Photographers of New York, and the Boston Camera Club, respectfully report that they have carefully examined all the exhibits, and have made the following awards:—George Bankart, Leicester, England—No. 52, "In the Trossachs;" No. 57, "Cottage at Welford, Gloucestershire"; L.S.No.2, lantern slides, cottage subjects. Francis Blake, Auburndale, Mass.—Nos. 42, 43, 44, instantaneous studies. Winfield S. Clow, Philadelphia—No. 23, "Making Apple Butter"; No. 26, "Solid Comfort"; No. 30, "Struck it Rich." John E. Dumont Rochester, N.Y.—No. 1,058 A, "Hard Luck"; No. 1,058 B, "The Solo"; No. 1,061, "The Connoisseur." A. Eickemeyer, jun., Yonkers, N.Y.—No. 733, "Gathering Lilies"; No. 737, "Mistress Dorothy." Miss Emma Justine Farnsworth, Albany, N.Y.—No. 918, "Orpheus"; No. 919, Ode 34, "Anacreon"; No. 922, "Friends." John H. Gear, London, England—L. S., No. 48, lantern slides. William Gill, Colchester, England—No. 1,017, portrait; No. 1,020, "Kittie"; No. 1,028, "Kittie." Karl Greger, London, England—No. 193, "Sunset on the Lower Thames"; No. 194, "In the Welsh Mountains;" No. 196, "Home from Ploughing." Edgar G. Lee, Newcastle-on-Tyne, England—L. S., No. 12, lantern slides. R. H. Lord, Cambridge, England—No. 176, "Try Again"; No. 177, "Work and Play"; No. 171, "How's That?" W. P. Marsh, Bognor, England—No. 393, "After a Sou'wester"; No. 394, "What are the Wild Waves Saying?" Charles L. Mitchell, M.D., Philadelphia—No. 347, "On the Banks, Durham"; No. 370, "A Fisherman's Home, Clovelly; L.S., No. 40, lantern slides—Swiss views. Clarence B. Moore, Philadelphia—No. 3, "The Coming Race"; No. 6, "Gimme a Light;" No. 13, "Tickled to Death." George M. Morgan, Boston, Mass.—No. 792, portrait study; No. 793, portrait study. E. Obernetter, Munich, Germany—Nos. 933, 937, 938, landscapes. Charles R. Pancoast, Philadelphia—No. 375, "Evening on the Mentauk"; No. 376, "Near

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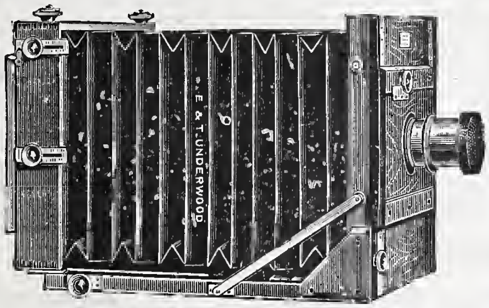

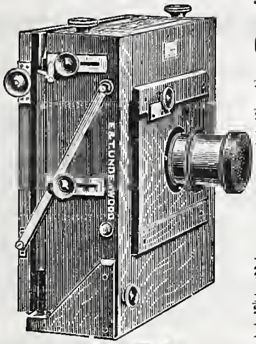

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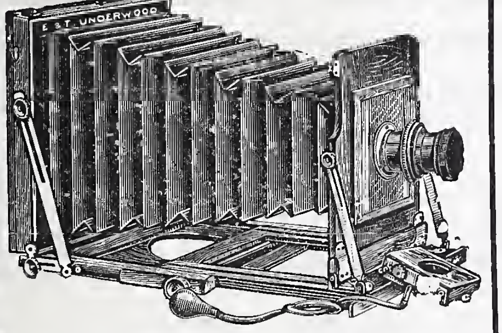

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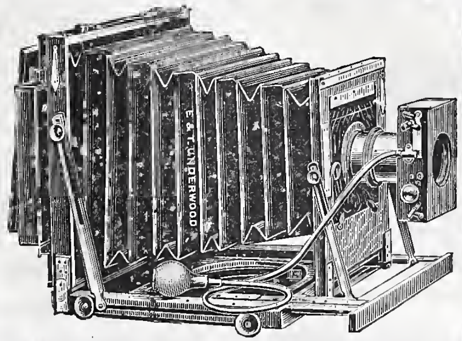

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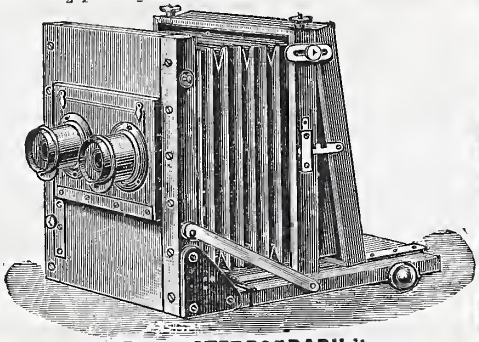

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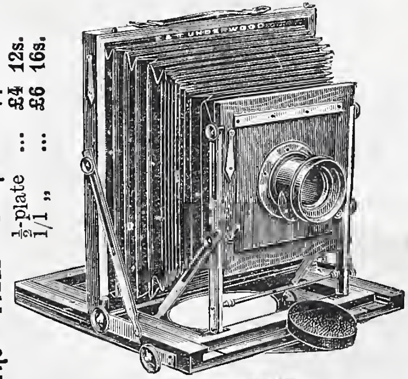

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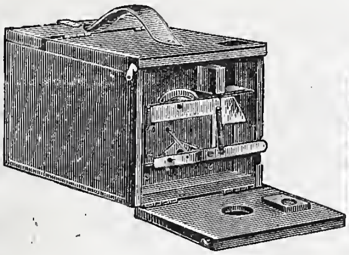

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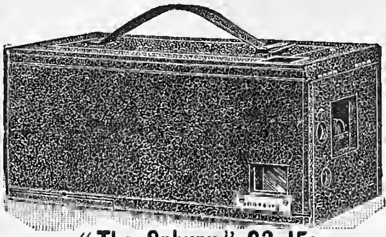

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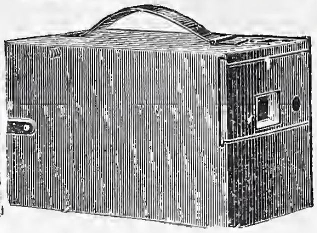

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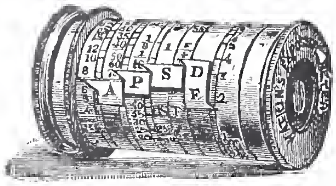

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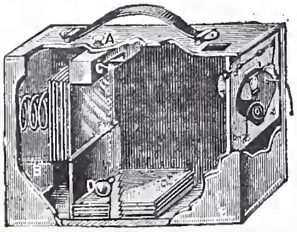

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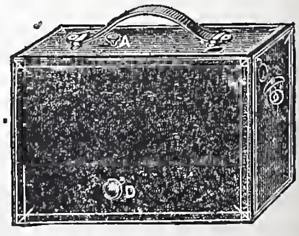

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James B. Sword, Thomas Hovendcn, George W. Hewitt, Robert W. Vonnoh, John C. Browne, Board of Judges.

Societies' Notes.

A Photographic Society has been formed at West Kirby, Cheshire. Mr. J. Maurice Jones, of Bank House, is the Hon. Secretary.

Mr. W. Fenton Jones, the Hon. Secretary of the Hackney Photographic Society, has by deed poll taken the surname of Fenton-Jones. "A rose by any other name will smell as sweet," and probably, or at least we are sure, Mr. Fenton-Jones will be as energetic and hard-working as ever.

Societies' Meetings.

Birmingham.—Ordinary meeting on 25th ult., Mr. W. Jones in the chair. One new member was elected. An extremely fine set of slides by Mr. Hendren, a member of the society, were then shown on the screen. They comprised beautifully selected landscape and architectural bits, and were instances of most careful and successful composition. Mr. Hendren gave interesting descriptions of the places and styles of architecture; he also instanced the different results of various methods of development by sometimes showing two slides from the same negative. This was of great interest to members. A plucky slide of a warm brown tone was, in most instances, preferred by the lecturer.

Cheetham.—On 26th ult., one new member elected. Lecture by Mr. Wilkinson, jun., on "Printing and Toning," and as this was full of practical hints it was well appreciated by the members. The evening was concluded by the President developing several plates exposed by the members, in illustration of his lecture at the previous meeting.

City of London College.—On the 26th ult., Mr. W. Cozens Cooke, A.I.E.E., read a paper on "Some Methods of Micro-Photography," dealing with the subject under four heads, viz., optics of micro-photography, apparatus, illuminant, and the photographic process. He then gave a demonstration by electric light, the room being darkened, and the illuminant—a 4·5 volt incandescent lamp run by a 6 volt secondary battery—enclosed, no camera being used. The advantages he claimed for this system were, extreme portability, comparative cheapness, perfectly steady light, minimum amount of heat, and light can be placed close to the object. Several plates were exposed and successfully developed by the light of a ruby incandescent lamp, current being supplied by the same battery. Mr. Cooke handed round during the reading of his paper several specimen negatives, and prints from the same, and drawings fully illustrating the optics of, and different forms of apparatus used in micro-photography. Photographs taken at the excursion of the society to Kew Gardens were passed round, and three new members were elected.

Durham.—On 26th ult. the last indoor meeting for the season was held. The President, Rev. H. E. Fox, M.A., in the chair. Mr. Wm. Parry, South Shields, read a very interesting paper on "Retouching." Summer outings were arranged to Warkworth on Whit. Monday, Fountains Abbey in June, and Richmond in July.

East London.—Ordinary meeting, Mr. C. Tylee in the chair. Several interesting questions from the question-box read and answered. Mr. Uffendell gave a very able demonstration on flash-light photography, by means of a very ingeniously contrived apparatus of his own manufacture. It consisted of three lamps made thus: a block of mahogany about two and a half inches square with two hobs laid at right angles to each other and meeting. To one of these hobs was attached the rubber tubing, and to the other a gas burner with the top taken off, to hold the magnesium powder, the burner projected through a circular piece of tin (the lid of a coffee tin) to contain the spirit. The three lamps were connected with india-rubber tubing, the cost of the whole not exceeding 2s. 8d. He then made several exposures upon the members present with very satisfactory results. He used Edwards's instantaneous isochromatic plates, developed with the Ilford soda formula modified to reduce the excessive contrast one is so likely to obtain in flash-light portraiture. Prints and negatives were shown by Messrs. Gould, E. Tylee, Smith, and Bigford.

Guildford.—A meeting was held on 25th ult., when a set of lantern slides illustrating life in South Africa were exhibited. These slides were sent to England by the Cape Town Photographic Club, and are being circulated amongst the English photographic societies.

Hackney.—The usual meeting was held on the 25th ult., Mr. R. Beckett in the chair. A print of uneven colour was shown, a question was asked as to the reason, a reply was given that the toning bath was out of condition. Mr. Roberts asked if, after developing in pyro, a plate can be put into amidol for further detail. Mr. Dresser said it was like jumping from the frying-pan into the fire, and was not altogether advisable. Mr. Puttock asked how to remove pyro stains from the hands. Mr. Beckett said one way was to wash in 1 : 4 hydrochloric acid. The Hon. Sec. asked Mr. Dresser how he removed amidol stains from the hands. Mr. Dresser said they cannot be removed, must wear off, but washing in the dark was a good plan, as the light caused an action on amidol. Mr. Hudson had been experimenting with developers for snap-shot work and gave an excellent formula, an admixture of eikonogen and quinol with carb. and caustic potash. Mr. Dresser then gave "The After-work of the Hand-camera." Although he treated very largely upon this subject he was drawn into other questions upon the hand-camera for which he is so well known, and gave among other details the following:—The chief point was a good lens and shutter, and advised a shutter working between the lenses; roller slide or films; objected to magazine form, owing to the tendency to stick. A good eikonogen formula for snap-shots is:—Eikonogen, 1 oz.; sulphite soda, 5 oz.; carb. of potash, 1 oz.; caustic soda, 1½ oz.; water, 30 oz.; and for use take 1 oz. of sol. and 1 of water. For fuller exposures he would add bromide, and redevelop by adding a little hydroquinone. He had been experimenting with metol, but did not find it quite so good as amidol for short exposures. His amidol formula was: (1) Amidol, 1 oz.; meta-bisulphite potash, 1 oz.; water, 10 oz. (2) Carb. of potash, I oz. in 5 oz. water. (3) 10 per cent. solution brom. potass.: for bromide work he would use 1 dr. of 1 by 2, and 6 cz. water, adding bromide for full exposures. He used in enlarging the incandescent light, but care was necessary one light was placed behind the other, as better illumination was given. Mr. A. Barker asked whether it was necessary to have a rising front and swing back to a hand camera. Mr. Dresser was of opinion a rising front only was necessary. In answer to other questions. Mr. Dresser preferred a 4¼ or 5 in. lens, and small lens, he would develop with amidol until he got detail; and then wash and finish with hydroquinone. The Hon Sec. announced next meeting was the annual one.

Halifax.—On 25th ult. Mr. A. Stewart gave an interesting paper on the subject of "Lenses." In the course of his remarks Mr. Stewart said that without the use of a lens, but simply by means of a pin-hole, an inverted image is formed on the focussing screen by the rays coming in a direct line through the pin-hole from the object. In this case there is no focus, everything being in focus at whatever distance. The use of a lens is to utilise other than straight rays, and according to its focus to regulate the angle of view included and the size of the image as well as to give greater sharpness. When a lens is used objects at different distances from the lens are not brought to a focus at the same point, and in order to overcome this stops are used which tend to equalise the focus. The focus of a lens depends on its curvature; the greater the curvature the shorter the focus. The rapidity of a lens is influenced by the size of stop used, and also by the number of reflecting surfaces in the lens. A short-focus lens gives more depth of focus than one of longer focus. Objects at a greater distance require less exposure, owing to the fact that more rays of light come from distant objects. Mr. Stewart also spoke of the faults of lenses, and also of the special uses of the different sorts of lenses. At the close Mr. Stewart answered several questions asked by members, and also showed samples of pin-hole photography.

Kensington and Bayswater.—A meeting was held on the 1st inst., presided over by Mr. C. W. Brumwell, when the 1892 Prize Slides of the Amateur Photographer were exhibited by the honorary lanternist, Mr. G. Bursnell. Slides also by Miss K. Oldham and Messrs. Jones, Scales, and Parrott were exhibited.

Liverpool (A.P.A.).—A meeting was held on the 27th ult., Mr. J. Sirett Brown in the chair. Messrs. H. Jennings, Stanley Rimmer, James Wilson, and David Robinson were elected members of the association. Mr. J. T. Norman - Thomas reported on the excursion to Ince Blundell Hall and Park, on 15th ult. About one hundred ladies and gentlemen were present, and owing to the delightful weather a most enjoyable afternoon was spent. Mr. E. M. Tunstall gave his lecture, entitled "Picturesque Holland," illustrated by over one hundred slides made from negatives taken during August last year. The lecturer was well up in his subject, and gave a very graphic account of the various places visited. It was announced that an excursion to Chester and River Dee to Eaton, would take place on Saturday, 13th May next.

Liverpool (Camera Club).—On the 26th ult., Mr. J. Hawkins, the President, in the chair. The evening was devoted to the passing through the lantern "Photography's" prize competition set of lantern slides, which was very much appreciated by a full attendance of members and friends. Mr. T. Edwards officiated as lanternist.

Tunbridge Wells.—On the 29th ult. there was a large gathering present at the Town Hall, including his Worship the Mayor (Mr. H. Pink), by invitation of the members of the above society, to view the AMATEUR PHOTOGRAPHER 1892 Prize Slides. Unfortunately, a telegram had been received by the Hon. Sec. from the Editor of the AMATEUR PHOTOGRAPHER, stating the slides had been lost, but by great exertions a scratch set was got together, so that those invited should not be disappointed. After a selection by the band, under the direction of Mr. Pierson, the slides kindly lent by Mr. George Brittain, one of the members, were shown. These embraced views of Cornwall scenery, a few coloured effect slides being shown, and which concluded the first part, when a selection was given by the band. This was much appreciated by the company present. A miscellaneous set was then shown of Venice, flower studies, which were very fine, figure studies, animals at the Zoo, frost scenes, Indian ruins, which, with the effect slides shown by Mr. Cornell, seemed to meet with much approval. The slides were described by the Hon. Sec., and at the conclusion the Mayor said he thanked the Association on behalf of those present for so kindly giving them such a treat, Mr. Cornell for manipulating the lantern in such a masterly manner, and the band for the delightful music.

West London.—On 25th ult., lantern evening. The President announced that this Society had been awarded the National Challenge Cup at the Crystal Palace Photographic Exhibition. The evening was to have been devoted to showing the AMATEUR PHOTOGRAPHER Prize Slides, but as these had miscarried in transit, the meeting devoted itself to general business of the Society, and discussed particularly the forthcoming annual dinner which, it was notified, had been arranged for at the Frascati Restaurant, on May 9th.

Y.M.C.A., Leeds.—A lantern exhibition took place on the 21st ult., over 120 slides being passed through. There was a good attendance of members and friends, and the views seemed to give general satisfaction.

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SOCIETIES' FIXTURES.

May 4—ASTON.—"Practical Development," by Mr. A. C. Townsend.
„ 4—HARRINGAY.—Development.
„ 4—LONDON AND PROVINCIAL.—Technical Lecture, "Developers," by E. J. Wall.
„ 5—LEEDS (Y.M.C.A.).—"Wet Plate Processes," by Mr. Garbutt.
May 5—HOLBORN (Camera Club).—Selections by Mr. E. Dunmore, Election of two committee-men in the place of Mr. E. H. Bayston and Mr. T. C. Dear (resigned).
„ 6—BRISTOL (Camera Society).—Excursion to Clutton and Hallatrow.
„ 6—SOUTH LONDON.—Excursion to Highgate Woods.
„ 6—PHOTOGRAPHIC CLUB.—Excursion to Eynesford.
„ 6—ASHTON-UNDER-LYNE.—Excursion to Whaley Bridge; leader, Mr. S. Sharp.
„ 8—RICHMOND.—"Home-Sensitised Paper," Mr. G. Ardaseer.
„ 8—DARLINGTON.—"Hand-camera Work," Mr. H. W. Hollis. "Development," Mr. T. Howlett.
„ 8—N. MIDDLESEX.—Demonstration on Working Carbon Process, by the Autotype Company.
„ 8—WOOLWICH POLYTECHNIC.—"Preparation of Negatives for Printing," W. C. C. King.
„ 9—CHEETHAM.—"Dark-room Construction," by Mr. A. O. Broadbent.
„ 9—WEST LONDON.—Annual Dinner.
„ 9—EAST LONDON.—Demonstration of Development.
„ 10—BIRMINGHAM (Photographers' Union).—"The Hand-camera."
„ 10—CROYDON.—Conversazione, 9 p.m.
„ 10—NEWCASTLE-ON-TYNE.—Excursion to Brampton and Gelt Woods; leader, J. Hedley Robinson.
„ 10—PHOTOGRAPHIC CLUB.—Members' Open Night.
„ 11—DUBLIN (Y.M.C.A.).—Technical Meeting and Exhibit of Prize Slides.
„ 12—HOLBORN (Camera Club).—Social evening. "Photography" Hand-camera Prints on View.
„ 13—HOLBORN (Comera Club).—Official Outing to Richmond.
„ 13—HUDDERSFIELD.—Ramble, Mollicar Woods.
„ 13—BRISTOL (Camera Soc.).—Excursion to St. Peter's Church and Hospital.

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Stripping Gelatine Negatives.—Herr Liesegang recommends the following method for detaching gelatine films from their glass supports: The negative, or positive, after development, etc., is immersed in a weak solution of sulphuric, hydrochloric, or citric acid. After a few minutes it is (without washing) placed in a concentrated solution of sodium carbonate. Carbonic acid gas is thus formed between the film and its support, which causes the film to bubble; when it can be removed with ease. After detachment the film is given a bath of absolute alcohol; it then dries quickly and perfectly flat.

Cyanotype Transparencies.—According to M. Rossel, the eminent artist in photography, relates the New York *Sun*, beautiful blue transparencies may be produced by means of a very simple process. In carrying this out commercial cyanotype paper is exposed beneath a negative until the image will be very intensely visible, when it is thoroughly washed and placed for fifteen minutes in a 10 per cent. solution of bichromate of potash. After the print has again been well washed it is allowed to dry, and then rendered transparent by placing it on a warm glass plate, and treating it carefully with paraffin. The print is now framed between two glass plates. The cyanotye paper employed in this case, giving white lines on a blue ground, is very easily prepared; that is, plain photograph paper is placed in a solution of twenty-five grains ammonio-citrate of iron and twenty-five grains of potassium ferricyanide in 150 c.c. of water, and then drying it in the dark.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer Questions by post.

QUERIES.

6063. **Blacking Waterhouse Stops.**—Can any reader kindly tell me the best method of chemically blacking stops?—CHUM.

6064. **Photo-Xylography.**—If any of your contributors will give me particulars of how photographs are taken on wood I shall be much obliged.—R. H.

6065. **Varnish.**—Which is the easiest made varnish, easiest to apply to a negative, and the quickest in drying.—K. O. P.

6066. **Lenses.**—Is there any difference between a rapid rectilinear lens and a rapid symmetrical lens? Which is the best for general work, and for which subject is each intended?—STRAND.

6067. **Acids.**—What is the difference between sulphuric and sulphurous acids, what is their principal use?—ARNO.

6068. **Toning.**—I have some prints toned with Eastman's Solio combined toning-bath; six were toned at a time, and four of the six are a reddish-brown, but the other two are a very bright red, very much similar to the colour of the prints when first put in the bath. How is this, which is the right tone, and are either sets under or over toned? A reply will much help a beginner.—E. W. SNOWBALL.

6069. **Callander.**—If any of your readers should have visited Callander, or know anything of its surrounding districts, I shall be much obliged for particulars.—M. Y. S.

ANSWERS.

6044. **Enamelling.**—If the plate has blemishes they will be sure to show; you cannot repolish it. Get a ferrotype plate and use, costs 4d., and always wrap it up in soft paper when put away.—W. BEYER.

6045. **Mounting P.O.P.**—After washing, leave prints to *partially* dry (each singly, and face upwards) on a newspaper, to harden gelatine. Damp again slightly, then squeegee on to ferrotype or glass; when dry peel off. Starch the mount and not the print; lay the print on the starch, and with a clean handkerchief spread over the print, squeegee it down and the glaze will remain.—H. G. BABINGTON.

6045. **Mounting P.O.P.**—"R. N." does not state whether the difficulties he has met with in mounting have been in using the albumenised or gelatino chloride papers. If the former, he should have no trouble in removing the fluff that adheres to the surface, provided he rubs it gently with a soft handkerchief when print is quite dry. It would be absolutely impossible to mount gelatino chloride paper in this way.—M. N. SMITH.

6048. **Snap-shot Developer.**—"Snap Shot" cannot do better than use eikonogen and hydroquinone developer for his work. I can fully testify to the efficacy of using these combined developers. Any of the published formulæ would suit, but a reliable one-solution developer, which can be obtained of Fallowfield's, is the best I have used.—M. N. SMITH.

6049. **Paper Negatives.**—You can make paper negatives by using Ilford rapid smooth paper in the camera, same as plates. Put a piece of thick card behind the paper, I have some capital views taken that way. Give just a very slight extra exposure, say one eighth more than plates, and develop with amidol. Using paper this way you get no halation in forest views, etc., or on the edge of horizon. Also you can make them by contact with transparency. They will print fairly well without any preparation. — W. BEYER.

6051. **Sulphite in Toning.**—Sulphite of soda in the fixing bath is not new, but it would have been more generally used if it was cheaper. It has been proved to be an excellent fixing bath, but as hypo of soda was cheaper it was not used by the majority of workers. Sulphite of soda has one very good advantage, and it is of importance now that gelatino-chloride papers are used a lot—it prevents the hyposulphite of soda from staining the print, which hypo would do were prints left in it any length of time, or if the hypo bath was at all old. As solio and P.O.P. papers are so easily and fatally stained, it was thought best that such an addition to the fixing bath would make the paper of more value, and far less stained prints are consequently now seen.—MONTROSE.

6054. **Mounting P.O.P.**—"Lucy F." will, I think, find "Manual of Photography," by C. H. Bothamley, very useful, from which the following has been culled: "The position of the trimmed print on the mount having been determined and marked by two pencil dots at the top corners of the mount, the print is placed face downwards on a clean piece of paper, and a thin coat of the starch paste is applied evenly to the back. The print is then carefully lowered into its proper position on the mount, a piece of clean white blotting paper is placed over it, and the print is pressed down and the excess of starch squeezed out by rubbing on the blotting paper with the ball of the thumb, working always from the centre of the print towards the corners. A sheet of strong smooth paper may then be placed over the blotting paper, and a straight-edge or ruler passed over it with considerable pressure in the same way as in stroking a print."—D. H. W. PREEDY.

6054. **Mounting P.O.P.**—These papers (Solio and P.O.P.) have only one fault of any great importance, and it is the difficulty experienced in mounting prints on these papers without doing harm to the prints; but although this is a very serious point to not a few in the early life of this paper, it is very easily and successfully over-ruled by careful experience and a little extra trouble. Having been so used to albumenised or such papers whose films are hard to damage, it seems a great trouble to have to refrain from handling or rough handling of these prints, but it must be done in order to be successful when using these papers. Prints of either of these papers are best mounted right off directly they have been washed for an hour and a half, after toned and fixed, and by so doing you save the trouble of having to soak the print again and of the prints cracking while drying. The best, simplest, and most successful method of mounting these prints I find is as follows:—After the prints have been washed for the time required, they are taken out one a ta time; one print is laid film down on a sheet of glass (which has been previously cleaned) the mountant (which had best be starch) is applied, taking care not to put too much on; when this is done the print is laid on the mount, no blotting paper must be used, in fact it is not required; when the print is laid on the mount it only requires to be slightly rolled with a squeegee to squeeze out any surplus starch, and the mount laid flat to dry. If the foregoing conditions are attended to no one will find any difficulty in obtaining a good gloss on their prints.—MONTROSE.

6056. **Group.**—This question is such as is only to be looked upon as a sample of the difficulties which beginners fall into, and although it is a very difficult subject, by the time August comes the querist ought to know what exposure to give. Under the circumstances mentioned in his query stops *f*/16 or *f*/22 will be found most suitable: as regards the exposure, this cannot be given for certain, but from two to three seconds cannot be far wrong; in fact, I believe it would be the exposure I should give if the plate is to be exposed in a good light.—MONTROSE.

6056. **Group.**—Let E. M. be careful to keep the group of children out of the direct rays of the sun, and, using *f*/16 stop, give an exposure of 2½ or 3 secs.—W. PITCAIRN CRAIG.

6058. **Blacking Slides.**—"Glade" may black the dark slides by mixing lamp-black and japanner's gold size, and apply one or two coats.—W. PITCAIRN CRAIG.

6060. **Fog.**—If, as A. T. C. says, the negatives were fogged from the use of an unsafe light in the dark-room, little can be done to improve them, though a clearing bath composed of—

Alum	1 oz.
Citric acid	½ ,,
Water	10 ,,

might make them print better, by removing any stain from the developer. Let A.T.C. test his lamp by putting a plate in a dark slide, half drawing the shutter, and exposing to the light of the lamp for a few minutes; if, on development, there is any trace of fog, the lamp is unsafe and should be discarded.—W. PITCAIRN CRAIG.

6060. **Fog.**—"A. T. C." does not mention in his query the kind of fog which is troubling him. If it is the green or dichroic fog, Abney's method is the best to adopt to remove it, namely, the negative is immersed in the following solution until the image is completely bleached—

Water	4 oz.
Ferric chloride	50 gr.
Potassium bromide	30 gr.

The negative is then well washed and treated with the ferrous oxalate developer, all the operations being conducted in daylight.—D. H. W. PREEDY.

6062. **Colchester.**—J. C. Shenstone, 13, High Street, Colchester, has a dark-room. He also stocks Ilford plates and papers, chemicals, and apparatus.—D. H. W. PREEDY.

QUERIES UNANSWERED.

April 14.—Nos. 6027, 6029, 6030, 6032.
,, 21.—Nos. 6035, 6038, 6040, 6046, 6047, 6050.
,, 28,—Nos. 6052, 6053, 6055, 6057, 6059, 6061.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

BEETLE.—Your negatives are fully exposed, and we should say under-developed, fogged in developing, and printing has been done in the sun. Probably far better results could be obtained if the negatives were intensified. If you will send us up a negative we will be able to give you a little more practical help. What developer do you use? Do you want prints back?

E. A. B.—Probably the special hand-camera you name would answer your requirements.

DEFINE.—You cannot do better than get the lens you name. We have specimens of work done with these lenses, which are faultless.

F. T. BENNETT.—If you clean the glass thoroughly, and then apply a few drops of—

Yellow resin	36 gr.
Yellow wax	12 ,,
Turpentine	2 oz.

and rub it all over the glass with a pad, and polish with another pad, you will have no difficulty in stripping the prints.

J. C. STITT.—We have successfully copied albumen prints by pinning them on to a board level with the lens, which should be of as long focus as possible, and illuminating them by burning magnesium ribbon in a biscuit box, the front of which was covered with tissue paper. This quite gets over any glare or reflection from the print surface; and softer results still can be obtained by using opal glass, but this increases the exposure enormously. Twelve inches of ribbon burnt above the camera, and 12 in. on each side and 12 below is quite sufficient to give full exposure when copying an albumen print to half size, lens working at *f*/32 with rapid plate.

A. P. O'BRIEN.—The working distance, 9 ft., is very short. Will you call or send us sketch, and we will help you? State on plan the points of compass.

W. EDMUNDS.—We will utilise. Many thanks.

M. H. P.—(1) Rub the lanterns all over with paraffin after warming them well before the fire. (2) Either hydrochloric, sulphuric, or nitric acid can replace citric in the alum bath, and one drachm of the above to the half-pint will be strong enough. Should there be then any signs of mouldiness, add some salicylic acid, 1 gr. to the ounce. (3) Probably the pressure of the water is not strong enough to circulate the prints, which require more force than albumen prints.

W. E. A.—If you only develop once a week, why not dilute your stock solution as you require by adding 1 dram. to 19 dram., or ½ dram. to 9½ dram. It is just as well to make the developer fresh, as then you are sure of not having failures from spoilt developer. You give us no idea of what size you work. For architecture we should use gelatino-chloride paper, because in such studies detail is required. For groups, landscapes, and seascapes we should use mezzotype paper, either the smooth or extra rough; but we should always consider what effect we wanted to get, and then use that paper which would yield the nearest to that effect. It is almost impossible to advise any-one to stick to one particular printing process, or to say that one is the most suitable for all negatives. An actual examination of all negatives would be necessary really. The print you sent was well printed and mounted, but would only have come in our third class, because it is not artistic. We should certainly like the portrait better without the background, and should use platinum.

J. H. W.—(1) Generally single achromatic lenses, which can be obtained from Vevers, of Leeds, Lancaster's, or other dealers, at about 2s. each unmounted. (2) Spectacle lenses can be used for hand-cameras, and periscopic are the best. Of course, the necessary correction has to be made for the non-coincidence of chemical and actinic foci, and if stopped down to *f*/11, they would do, but, of course, should only be used in fixed-focus cameras, and will not give such sharp definition as achromatised lenses. (3) The focus of any lens can be shortened by placing in the plane of the diaphragm slit a double convex lens of short focus. Such lenses were used by Archer in 1851, and are by no means new.

ARCHERY.—The Meteor, probably.

MUSEUM.—Henry Park, 5, Station Buildings, Acton Street, Kingsland, London, N., makes Major Bruno's hand-camera, and price is 45s. for camera only, without lens, dark-slides, or shutters.

E. GARNER.—By keeping, most of the alkaline baths, of which the borax is one, refuse to tone. The gold is converted into a stable sodium salt, and is not reduced by the silver. You can add a few drops of pure hydrochloric acid to your old bath and then just sufficient carbonate of soda or washing soda to make it alkaline to test paper. Yes, you can always return the used bath to stock. The print you send is over-printed and over-toned, and the grouping would have been improved had the child sat down on the step nursing the cat.

NIKLE.—Most decidedly. You would be liable to a heavy fine or imprisonment. Let the thing severely alone.

S. P. TWEMLOW.—You will get no cabinet lens of good quality at the price you name. We should advise you to try to get one second-hand from the City Sale and Exchange Rooms, Lime Street, E.C.

A. G. PATERSON.—The statement you quote is utterly unfounded, both theoretically and practically, and the "obvious reason" is that the writer knew nothing about it.

XERXES.—(1) Yes, the Sandell plates can be developed with any developer, and, therefore, with Amidol, (2) The brown rim is caused by old paper, or else it may be, and the fact of its being rubbed off looks like it, a deposit of iron.

F. T. BELL.—Your failure to get density is not surprising. Dissolve the amidol as you want to use it in the proportion of 4 gr. to the ounce. For under-exposure dilute your developer and give it plenty of time To obtain density when sufficient detail is out add 1 dram. of solution of citrate of potash to every ounce of developer with more amidol. Amidol gives density, and sulphite quickens the development. You will find England's film varnish very satisfactory, and it can be applied with a brush.

A LEARNER.—Solution A will keep for about a week, but if you dilute the stock solution as you want it in the proportion or one part to nineteen parts, whether the parts be drachms or half-drachms, you will get the same thing. Ammonia 890 is made by adding one part of ammonia ·880 to two parts water.

H.—We do not understand your query. Are you referring to Hurter and Driffield's experiments, or do you mean what is the ratio between making a positive by contact and a negative in the camera? Please write again.

R. H. BLYTH.—Letter by post.

OAK.—You do not say whether you want to save the films. If not, make a hot strong solution of washing soda, place the negatives in and allow to soak for half an hour, then remove and use a fibre nail-brush or scrubbing to remove film.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence,*** *Every additional three words,* ***one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one word;*** *compound words count as* ***two words.****)*
DEPOSITS.—*Money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge 1s.*

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London. E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.,*** *or a commission of* ***2½ per cent.,*** *upon the sale price of the apparatus.*

Cameras, etc.—Lancaster's Omnigraph, 14s. 6d., cost 20s. this season.—Berry, London House, Stroud, Glos.

Studio camera, whole-plate, splendid condition, square bellows, folding swing back, etc., £2 15s.; approval; deposit.—Thompson, Bell, 15, Byron Street, Leeds.

Cameras, Lenses, etc.—Perken, Son, Rayment camera, quarter-plate, Optimus *f*/6 lens, three-fold tripod, cost £7 10s., £5, or offers.—Sausage, c/o Matin, 76, Royal Hill, Greenwich. Approval.

Dark Slides.—For sale, a few good 5 by 4 mahogany double backs, 2s. 6d. each, real bargains.—Mr. Woodcock, Thorncliffe Lane, Chapeltown, Sheffield.

Enlarging Apparatus.—Lancaster's 9in condenser, lens by Stanley, will accept good 18ct. diamond ring.—No. 403, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Hand-cameras, etc.—Kodak No. 3 Junior (time and instantaneous), with leather case, loaded with 100 films, good as new, price £5 15s.; specimen negatives sent.—B., 20, Regent Street, Nottingham.

Talmer perfected (1891) hand-camera, in first-rate condition, £5, cost £6 12s. 6d.—C. H. H., Elmstead, Birkdale, Southport.

No. 2 Kodak, perfect condition, good as new, deposit, price £6.—R., Holmwood, Walton Park, Clevedon.

Adams' Ideal hand-camera made to focus, with Wray's lens, very little used, £6; Watkins' exposure meter, 7s. 6d.—Mackenzie, 136, Tweedale Street, Rochdale.

Kodak, 3 Junior, about 25 films unexposed, equal new, £5 15s. lowest.—Bygrave, 13, Canterbury Road, Brixton, S.W.

Talmer hand-camera with leather case, £2; Lancaster's Instantograph, with two double backs, shutter, etc., £1; all in good condition.—Picknett, St. Leonard's School, Streatham, S.W.

Lantern Slides.—Given away, 24 coloured photographic slides, Rome, 10s.—Hawkins, Cedar Villa, Latchford.

Lenses, etc.—Lancaster's quarter-plate lens and pneumatic See Saw shutter, both new, exchange for hand-camera; no cards.—Davies, Stogursey, Bridgwater.

12 by 10 wide-angle rectilinear, 65s.; 8½ by 6½ Taylor's wide-angle rectilinear, 47s. 6d.; 5 by 4 R R., iris diaphragms, 27s. 6d.; half-plate R.R., 20s.; Lancaster's 15 by 12 wide-angle landscape, 25s.—59, Keppoch Street, Cardiff.

Rapid rectilinear lens by Laverne, size half-plate, fitted iris stops, grand definition and covering power, moveable hood, condition as new, approval, 30s.—Mrs. Bell, 25, Nelson Road, Clyde Road, Tottenham.

Would exchange half-plate rectilinear for portrait lens, half-plate view lens for background.—Parsons, Photographer, Crawley, Sussex.

Negatives.—Whole-plate views (Yorks), 21s. doz.—Jones, *Gazette* Office, Malton.

Sets.—Quarter Le Merveilleux set, 16s., good condition.—C. Matthewman, 35, Hallgate, Doncaster.

For sale, Wratten and Wainwright's half-plate camera, in first-rate order, Ross' rapid symmetrical lens, 6 by 5, with iris diaphragms and Grimstone's instantaneous shutter, complete with three dark slides, tripod stand, and solid leather lock-up case, price £10. May be seen at maker's, 38, Great Queen Street, London, W.C.

Quarter-plate Instantograph, three double backs, stand, case, and Kershaw's time and instantaneous shutter; No. 1 Kodak, cost £5 5s.; Crouch hand-camera, takes 24 quarter-plates, cost £6 6s. Offers wanted.—149, Westgate, Wakefield.

Half-plate camera by Morley, three double slides, stand and case complete, all movements and in best condition, with Hockin lens, £4 10s., cost double.—No. 402, office of this paper, I, Creed Lane, Ludgate Hill, E.C.

Excellent new half camera set, complete, 57s. 6d.—Miss Moyts, Suthamstead Park, Berkshiro.

Half-plate camera, reversible swing back, side swing, rising front, three double slides, 70s. R.R. lens, iris diaphragms, grand definition, Thornton-Pickard T. and I. shutter, Ashford full tripod, 50s. knapsack, lot for £8; or camera, slides, and lens alone, £5 5s.—51, Savile Park, Halifax.

Half-plate 1893 Instanto set, complete, by Underwood, equal new, bargain, 68s.—Merrett, Photographer, Stroud.

Lancaster's quarter Instantograph, four slides, stand, frames, lens, shutter, etc., complete, as new, 65s. the lot.—Apply, Reginald Cooke, Ashborne, Derby.

Complete half-plate set, consisting of Rayment's patent camera, with three double dark slides, also carriers to take quarter-plate, two lenses, rapid rectilinear and portable symmetrical by Perken, Son, and Rayment, Phantom pneumatic shutter, view finder, good tripod, focussing cloth, developing dish, measures, printing frames, small quantity plates, brushes, two dark lamps, plate washer, etc. Cash offers invited.—Apply, R., 36, Cookridge Street, Leeds.

Half-plate camera, long extension, three slides, 8 by 5 R.R. lens, shutter, tripod, case, etc., £5 10s.—Cunningham, 333, Crichton Place, Edinburgh.

Morley's new light Fairy 5 by 4 camera, four double backs in solid leather case, almost new, Ross' new lens, 5 by 4 universal symmetrical, iris diaphragm, case, cost lately £17, cash £12.—E. Walker, 15, Elm Place, South Kensington.

Underwood's Instanto quarter-plate, nearly new, complete, with lens, shutter, stand, bag, two double slides, 35s., bargain.—Watkins, 16, North Street, Newport.

Stand, etc.—Park's bamboo camera stand, with ball and socket and jointed screw legs, take 5s.; the Pocket type-writer, cost 10s., take 6s., or will exchange one of them for the No. 2 Diamond camera, or a slide to fit Lancaster's Instantograph.—T. Jones, Bryn-yr-Haul, Mold.

WANTED.

Background.—Wanted, background, interior or exterior. Send size, price, any photo, to Freeman, Photographer, Bangor, Co. Down, Ireland.

Cameras, Lenses, etc.—Wanted, half-plate camera, R.R. and W.A. lenses, and enlarging lantern; lowest cash price.—Parker, Culmore, Londonderry.

Hand-cameras, etc.—Wanted, Shew's Eclipse, Watson's Alpha, or similar patterns; approval required.—Alcock, Meadowside, Cricklewood, London, N.W.

Shew's Eclipse hand-camera, quarter-plate, approval. Send full details and price to Doctor Gibbs, 27, Chandos Road, Bristol.

Wanted, Swinden and Earp 5 by 4, good condition, approval.—W. Turner, Woodville, Lytham.

Lenses, etc.—Lancaster half-plate Instanto lens and shutter, wanted in exchange for piccolo value 30s., will give little cash.—A. Bates, 70, Caldmore Road, Walsall.

Shutter.—Wanted, Thornton-Pickard instantaneous shutter, 2in.—Angear, Yelverton, South Devon.

Sundries.—Wanted, stereoscope, graphoscope, dark room lamp; good exchange.—Stereo, 3, Walpole Street, Wolverhampton.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Cameras and Sets.—Meagher 10 by 8 camera, double extension leather bellows, rising front, reversing, fitted Lancaster lens, iris stops, one slide, bargain, £3 3s.; Lancaster's whole plate brass-bound Instantograph, wide-angle movement, all latest improvements, leather bellows, etc., fitted Lancaster lens, iris stops, instantaneous shutter, two double brass-bound slides, carriers and folding stand, finest condition, £6 17s. 6d.; whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; half-plate Baron camera, by London Paris Optic Co., Aldersgate Street, double extension, best leather bellows, rising and swing front, reversing and swing back, back and front extension for wide angle, fitted Optimus rapid rectilinear lens, Waterhouse stops, two double book-form slides, with patent catches, three-fold ash tripod and canvas case, really grand lot, £9 7s. 6d.; half-plate Lancaster's Instantograph camera, double extension leather bellows, all improvements, rapid rectilinear lenses, two double slides, folding stand and case, £3 17s. 6d.; half-plate camera, by Houghton, Holborn, grand lot, double extension, rising and falling front, swing and reversing back, three double slides, grand rapid rectilinear lens, iris stops, works *f*/8, and three-fold stand, set as new, £6 10s.; Lancaster's 5 by 4 International, all latest improvements, wide-angle movements, fitted Optimus rapid rectilinear lens, iris stops, double slides, and folding stand, £3 15s.; Chadwick's stereo camera, size 6½ by 4¼, leather bellows, rising front, swing back, reversing, rack focussing, fitted Chadwick's stereo landscape lenses, flap shutter, six Barnett's patent slides, two-fold stand and canvas case, £4 17s. 6d.; Lancaster's quarter-plate International, double extension, square leather bellows, rising and cross front, swing and reversing back, fitted Lancester lens, iris stops, instantaneous shutter, two double dark slides, in case and stand, 45s. **All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.**

Bargains in Lenses.—Lancaster's 10 by 8 combination Rectigraph, fitted iris stops, as new, £2 17s. 6d.; Dallmeyer's 8 by 5 rapid rectilinear, iris stops, quite new, £5 12s. 6d.; Grubb's 8 by 5 rapid rectilinear, fitted Waterhouse stops, grand definition, £3 15s.; Chadwick 7 by 5 rapid rectilinear, fitted iris stops, best condition, as new, 35s.; Ross No. 3 portable symmetrical, 5 in. focus, rotating stops, finest condition, 50s.; half-plate rapid rectilinear lens by Vevers, Leeds, fitted Waterhouse stops, works *f*/8, 8½ in. focus, 18s. 6d.; 7 by 5 rapid rectilinear by Browning, fitted Waterhouse stops, grand definition, as new, 27s. 6d.; 7 by 5 rapid rectilinear lens, by Laverne, works *f*/8, movable hood, grand definition, covers well, as new, 27s. 6d.; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s.; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works *f*/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s.; 7 by 5 Optimus landscape lens, rotating stops, finest condition, 27s. 6d.; Ross No. 3 C.-D.-V. portrait lens, Waterhouse stops, rack focussing, best condition, grand article, £6 6s., cost £11 11s.; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works *f*/8, movable hood, as new, 45s.; 5 by 4 Dallmeyer wide-angle landscape lens rotating (1A patent), rotating stops, grand definition, 50s.; Ross's No. 4 portable symmetrical, 6 in. focus, rotating stops, as new, 63s.; Sands and Hunter quarter-plate rapid rectilinear, fitted Waterhouse stops, good definition, 17s. 6d.; Sands and Hunter quarter-plate wide angle, rotating stops, as new, 15s.; Laverne ¼ wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B), Waterhouse stop, rack focussing, condition as new, £3 17s. 6d., cost £6 5s. **On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.**

Bargains in Hand Cameras.—Rouch's quarter-plate Eureka hand-camera, fitted Rouch's rapid rectilinear lens, roller blind shutter, carries 12 quarter-plates, bag changing, finder, covered leather, adjustable focus, as new, £4 10s.; Laverne's hand-camera, fitted very fine landscape lens, iris stops, time and instantaneous shutter, two finders, automatic changing, carries twelve quarter-plates, covered leather, £2 17s. 6d.; Beck's hand-camera, 5 by 4, fitted Beck's autograph lens, iris stops, eight double dark-slides, Newman's time and instantaneous shutter, two finders, adjustable focus, covered in morocco leather, very finest condition, £9 15s.; Talmer hand-camera, as new, good lens, time and instantaneous shutter, carries twelve quarter-plates, bag changing, two large finders, lowest, 63s. Houghton "London" hand-camera, fitted good lens, adjustable finder, shutter for twelve quarter-plates, ebonised, as new, 45s.; Radial hand-camera, by Marion, fitted "Soho" lens, carries twelve quarter-plates, shutter, two finders, focusser, etc., in leather case, £5 17s. 6d.; Ariel hand-camera, leather bellows, fitted Wray's 5 in. R.R. lens, rotating stops, Thornton-Pickard shutter, three double book-form slides, finder, complete in case, as new, £5 10s. **All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.**

ENLARGING APPARATUS, quarter-plate, 5in condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work.—Hume, 1, West College Street, Edinburgh.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

BROMIDE ENLARGEMENTS PROMPTLY.
12 by 10 and under, **1/6**; 15 by 12, **2/6**.
FINISHING, &c.
EMMENS & Co., MERTON, SURREY.
Mention Paper.

The Amateur Photographer

Telephone No. 1645
Telegraphic Address: VINEY, LONDON
Offices: 1, Creed Lane, Ludgate Hill, London, E.C.

No. 449. Vol. XVII.] FRIDAY, MAY 12, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 *till* 5 *o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from* 10 *till* 1 *o'clock.*

Our Views.—Philadelphia Catalogue—Unsuccessful Candidates—Dr. Gill in England—Astronomy and Photography—The Photographic Salon—The Origin of the Salon—The Committee—No Medals—The Salon *v.* Pall Mall—Snap-shots under Difficulties—A New Use for the Hand-Camera—The Comic Papers—The St. James's Budget—The Hand-Camera at Catford—A New Idea.
Flotsam and Jetsam.—By Anchorite.
Leader.—Black Tones on Chloride Papers.
Articles.—Photographic Procedure (Wall)—Influence of the Hand-Camera (Welford)—The Pictorial Modification of Photographic Perspective (Van der Weyde)—Amidol and Metol Hauff (Goddard)—Dry-Plate Making at Home (Bayley)—Retouching (Morgan)—A Club Excursion (Man about Town).
Letters.—The Powy's Eisteddfod (Roberts)—Postal Exchange Club (Davies)—Toning Solio (Maidstone)—London and Provincial Assoc. (Drage)—Lantern Slide Bureau and Exchange (Hastings).
Exhibitions—Forfarshire.
Apparatus.—Marion's Bromide Lamp—Vevers' Negative Envelope—Metol-Hauff.
Societies' Meetings.—Aston—Bath—Birmingham—Brixton—Croydon (Micro.)—Eastbourne—Hexham—Leeds—Lewes—N. London—Putney—Tunbridge Wells.

EDITORIAL DEPARTMENT—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

TERMS OF SUBSCRIPTION—

United Kingdom	Six Months,	5s. 6d.	Twelve Months,	10s. 10d.
Postal Union	" "	6s. 6d.	" "	13s. 0d.
Out of Postal Union	" "	7s. 9d.	" "	15s. 9d.

TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Print Competition, No. 48, Architecture.—Latest day, May 15th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, May 26th, 1893.)

Mr. Clarence B. Moore, of Philadelphia, U.S.A., has kindly sent us a copy of the catalogue of the exhibition lately held there, which is adorned with five very good collotypes and a photogravure. The frontispiece is from one of Mr. Moore's pictures, which won our Gold Medal in our Photography at Home Competition last July.

◆

Possibly of as much interest as those who won medals are the names of those who did not, and amongst English workers are Messrs. Smerdon Roe, Anckorn, Byrne, Cembrano, Lange, Stone, Terras, Diston, Oakden, Baker, Leeson, Calland, Court Cole, Harding, Farmer, Northwood, Avery, Webster, Acres, Brownrigg, Wane, Pringle, Lee, Beetham, Carpenter, Hankins, and Taverner.

◆

Dr. Gill, the Royal Astronomer of the Cape Observatory, was over in England on the 29th ult., and delivered before the British Astronomical Association a very interesting lecture on the uses to which photography was put in astronomical work at the Cape. Prints were shown to bear out his statements, and prove the enormous value of photography when thus applied.

◆

At the same meeting Mr. E. W. Maunder spoke as to the results which had been obtained so far as was known of the eclipse expeditions. The English work had been successful, and so had the American, and, from the much larger size of the images, and the fact that the eclipse had been observed on a zone 5,000 miles in length, and for periods of time amounting in all to 2½ hours, valuable accessions to our knowledge were hoped for when the results came to be compared.

◆

It is with pleasure we announce, as desired, the Photographic Salon of 1893, which was briefly hinted at in our columns only a week or so back, in our note as to "The Linked Ring," which body of artists are the promoters of the Salon.

◆

The following are the details of the preliminary notice:—

An exhibition of photographic pictures, to be called the Photographic Salon, will be held at the Dudley Gallery from October 9th to November 11th, 1893.

Careful consideration will be given to all pictures entered for exhibition, and a selection of works of pictorial merit only made by a committee.

Foreign as well as English photography will be represented.

The aim of the organisers of this, the first Photographic Salon, is to inaugurate a series of exhibitions (which it is hoped may be annual ones), bringing before the public the best productions of photography solely from the pictorial point of view.

No awards are offered, and no charges made to exhibitors.

The usual charge of 1s. will be made to the public for admission.

Arrangements will be made for the sale of pictures (if desired), and a commission of 15 per cent. will be charged on sales effected.

WHATEVER may have been its origin, and it is suggested that it is a direct opposition show to that of the P.S.G.B., which is devoted, or considered to be devoted, to technique and science, the general committee is sufficiently strong to guarantee that one particular school or method of working will not be in the preponderance.

* * *

THERE are no less than thirty-five well-known workers on the general committee, and it includes such men as Alfieri, Burchett, Colls, Davison, Gale, Pattison Gibson, Greger, Hinton, Hollyer, H. P. and R. Robinson, Lyd. Sawyer, Sutcliffe, Gay Wilkinson, Blanchard, Bhedwar, Keene, and Wellington.

* * *

IT will, of course, be noted there are no medals; some of us will murmur "Thank heaven!" and others bewail the loss of the chance of yet another bit of bronze, silver, or gold. There are also no charges for wall space, etc., so it must be presumed that the promoters look to the public to provide a sufficient number of shillings to cover all expenses, unless, of course, the commission on the sale of the pictures was considerable.

* * *

IT is unfortunate, look at it what way one will, that the Salon should be made to clash with Pall Mall. There is room surely for the two if held at different periods of the year, and the present arrangement can only lead to a revival of unpleasantnesses, and both must suffer.

* * *

THE merits of a five shilling hand-camera were recently advertised by its enterprising manufacturers in most glowing terms in the columns of a leading organ of the teaching fraternity. After a lengthy preamble the advertisement went on to state that this marvellous photographic machine could be successfully made use of at any unexpected moment—in church or chapel, in the Divorce Court, in an omnibus or railway carriage, or at any conceivable indoor ceremony, one being almost led to suppose that a good snap-shot could be thus obtained in any place that was slightly less gloomy than a coal-cellar.

* * *

FANCY one of our learned scholastic brethren being deluded into purchasing one of these instruments of torture! There is one use he might make of it certainly. He might thenceforth abolish the cane altogether, and give the class a warning instead that if there were any unruly members they should be punished by having their photographs taken and presented with a copy. One application of this new mode of chastisement would be more effective than all the thrashings in the world, and we hereby make a present of this valuable suggestion to the Education Department.

* * *

WE now and again observe in the comic papers that good old yarn (it is getting greyheaded now) about the naughty little boy who turns on his "detective camera" and secures a picture of his grown-up sister and her sweetheart as they sit with their heads together on the sofa, and who threatens to "tell mamma" unless he is bought over at his own price. We do not, believe, however, that there are now many people who are foolish enough to believe that snap-shots can be obtained in dimly-lighted interiors, the correct exposure for which would be counted by hours.

* * *

THERE are notwithstanding some people who persist in attributing miraculous virtues to what they call "detective cameras," and are ready to believe any claptrap concerning them, no matter how ridiculous and absurd.

* * *

THE *St. James' Budget*, which has during the last few weeks developed into an illustrated weekly, announces a series of prize competitions for amateur photographers.

SEVERAL hand-camera men were at work at the Catford meeting at Herne Hill track on Saturday last. They all, however, confined their attention to the starts. It requires a shutter working at a terrific speed to properly take the finish of a bicycle race. Messrs. Waterlow have in their window in Blomfield Street, London Wall, a splendid snap-shot of a bicycle race in which Mecredy and Arthur du Cros, the two Irish champions, are seen cutting out the pace. So well is the picture taken that there is not a particle of movement anywhere, and every spoke in the wheels of the machine *can be counted* as easily as though they were standing still.

* * *

MESSRS. ADNITT AND NAUNTON, of The Square, Shrewsbury, have adopted a capital plan for the increase of their photographic trade. In a neat cover adorned with process-block illustrations, they give to *customers* a four-page leaflet on "Picturesque Shrewsbury." Four routes have been chosen, and tabular statements of the principal objects of interest, and the best time of day for taking them, are given. We heartily congratulate Messrs. Adnitt and Naunton on this capital idea, and doubtless many other dealers would find it an advantage to follow their example. This firm also offer a dark-room free for changing plates, only to customers.

Flotsam and Jetsam.

HOW large and interesting a part photography is taking in the newer journalism may be seen by a glance at the *Westminster Budget* of Friday last. There a smart interviewer has an article on the Australian cricket team, and relates with evident glee how by the aid of a kodak, and not a little impudence or enterprise—they seem to be interchangeable terms nowadays — he "went on the prowl for snap-shots," and forestalled all the professional photographers.

THEY, poor fellows, were waiting outside to make appointments, but our nimble kodaker knew a trick worth two of that. As soon as the team arrived, he secured Messrs. Graham and Gregory, then he bagged the redoubtable Giffen, caught Lyons, "while he was adjusting his hat," and wheedled several others in and about the hotel to face him just for the necessary second. The results were distinctly creditable, even after the ordeal of reproduction. Evidently, a kodak will soon be an indispensable part of a reporter's outfit.

IT may be well, however, for all men to know, on the authority of the Vice-Chancellor's Court at Oxford, that a kodak camera is not absolutely necessary to a young man's maintenance, even though he be an undergraduate. These undergraduates have, some of them, at least, a touch of Tamerlane about them. One of them, a son of Lord Henley, managed to disburse the trifling sum of £1,000 or thereabouts, in his first year of residence. But Nemesis overtook him when he was sued for the cost of his kodak and had to set up a plea of infancy. It was admitted too!

THE May number of that delightful American magazine, *The Cosmopolitan*, tells in an interesting Dickens article a little incident which shows up the London policeman in a most amiable light. The writer had gone down to the pump at Aldgate, reminiscent of the susceptible Mr. Toots, and was longing to photograph it, but found that the constant traffic made the attempt impossible. Suddenly there appeared the *deus ex machina*, in the shape of a man in blue, saying, "Would you like to have the traffic stopped, sir?"

"THIS," continues the contributor, "amazed him, for it was more than he had the assurance to ask. And yet he is an

American! However, the policeman was as good as his word, and the result was that the two great rivers of traffic for a moment or two 'stood still' in order that a wandering Yankee might photograph a pump." The wandering Yankee seems to have been a wonderfully modest specimen of his race, though he writes with an eagle's quill, evidently.

The gentle art of sweating is not confined to our own land, it seems. Dr. Adler, the leader of the Marxian Socialists of Austria, was last week presiding at a strike meeting of Vienna women employed in cotton starching factories, at which more than enough evidence was given by the very appearance of the women present of the awful conditions under which they labour. Dr. Adler said at the conclusion of the meeting that he wished they could be photographed as they were, for the philanthropists of the future to see under what inhuman conditions they worked.

The remark is a suggestive one. The history of our own times is being written far more fully, as it is being lived far more intensely, than the history of any previous age has been, and, perhaps, when future historians come to collect materials for building up pictures of the last half of the nineteenth century, they will find not many more valuable, and certainly few more interesting helpers, than the productions now being poured out in such enormous volume by the camera.

Photography is so universal that its remains, even a hundred years hence, must be considerable, and in this universality its great value consists, for by this means it touches the life of the people at almost every point. There is scarcely anything in the way of reproduction of the likeness of men and things, of the appearance of our towns, and of the customs of our people, in dress, for instance, that the camera is not capable of. Who has not, even now, when the art is quite in its youth, turned over the family album and laughed at the quaint old-fashioned photographs of the last generation, with their stove-pipe hats and crinoline skirts?

Just so, no doubt, will this generation be laughed over in its turn by that which is treading on its heels. And it is easy to see from this domestic instance, how photography may by and by help in wider and larger spheres to reconstruct a far better picture of life in our towns than we can possibly construct of life in the times of our fathers.

Here is an interesting bit of criticism, or should we say comment, about Mr. Stanhope Forbes's Academy picture "The Lighthouse," which will doubtless find many admirers among the visitors to Burlington House during the next few weeks: "Here we have the Newlyn style carried about as far as it can be carried. . . . The boat approaching the pier with the two fishermen on board could not be more like a boat, or the pier more like a pier. . . . If you want verisimilitude, here it is, and no one could do it better. It is as good as a photograph."

Anchorite.

BLACK TONES ON CHLORIDE PAPERS.

In the current issue of Eder's "Jahrbuch," Herr Emil Bühler, of Mannheim, contributes a capital article on the above subject. Although treating of Mignon paper, with which his name is associated as manufacturer, it is obviously applicable to any gelatino-chloride paper.

After printing, the prints should be placed in acidulated water—two or three drops of glacial acetic acid to 35 oz. of distilled water—in which they should be allowed to remain for two minutes, then washed once or twice and toned.

To prepare the new concentrated toning bath, heat in a beaker in a water bath to 100° F.

Distilled water	4 oz.
Chloride of gold	36 gr.

when completely dissolved, add—

Strontium chloride	360 gr.

and heat to 212° F.

Now dissolve—

Ammonium sulphocyanide	88 to 480 gr.
In distilled water	4 oz.

and heat the solution to 212° F. To this add the solution of gold in four or five portions, shaking between each addition. Allow the whole to cool, and filter. Wash the filter with—

Distilled water	1½ oz.

and add to the mixed solutions. Shake the solution well, and fill with it small clean bottles and cork well.

The toning bath is made as follows—

Stock solution	5 to 7 parts
Distilled water	100 „

For weak prints the smaller proportion will be sufficient, but for vigorous prints the gold must be stronger.

The prints should be toned till, on looking through them, the half-tones appear almost grey, whilst the deep shadows should still be reddish. They should then be washed once and fixed in a ten per cent. solution of hyposulphite of soda, being allowed to remain in the same for ten minutes, face upwards. They should then be washed for one hour and placed in the following alum bath after it has been filtered—

Ammonia alum	25 gr.
Water	1 oz.
Liq. ammon. ·880	2 to 3 drops

The prints should remain face downwards in this for from five to fifteen minutes, and then well washed.

For mounting prints which are squeegeed to glass, Herr Bühler recommends preparing a mucilage by dissolving—

Gum arabic	1 part

in

Hot water	2 „

filtering and allowing to cool. Whilst the prints are damp and squeegeed to glass, give them a coating of the above mucilage, allow to dry, strip, and mount by damping the cards and squeegeeing into contact.

Letters to the Editor.

THE POWYS EISTEDDFOD.

Sir,—It will perhaps interest your readers to know that the committee of the Powys Provincial Eisteddfod, which will this year be held in Llanfyllin, are offering the following prizes:—£1 1s. for six photographic views taken in the hundred of Llanfyllin (half-plate, confined to amateurs); £2 10s. for twelve photographic views taken in the hundred of Llanfyllin (open).

The successful sets of photographs are to become the property of the committee, and will be probably used to adorn the council chamber. All entries in the Art Section close on June 1st, but since the eisteddfod does not come off until July 7th, the committee may possibly be induced to fix a later date, if asked to do so by intending competitors.

The hundred of Llanfyllin comprises eight parishes. Within its borders is to be found some of the most lovely scenery in Wales, and not the least of its attractions is Lake Vyrnwy, an artificial lake from which Liverpool draws part of its water supply, and which is looked upon as one of the triumphs of modern engineering.

I believe the Cambrian Railway issues a list of hotels in the neighbourhood, as well as of good cheap lodgings to be had in the farm-houses.

I shall be very pleased to supply intending competitors with any further information on receipt of a stamped and addressed envelope.—Yours, etc., (REV.) C. F. ROBERTS.

Llanfyllin R.S.O., Montgomeryshire.

P.S.—Application for the Cambrian Railway's list should be addressed to the Manager at Oswestry.

* * * *

POSTAL PRINT EXCHANGE CLUB.

SIR,—At the request of several photographic friends (amateurs), I am endeavouring to form a Postal Print Exchange Club, and have obtained seven members, but am desirous to secure thirteen. I have undertaken to act as Hon. Sec. and conductor. The club is for amateurs not too far advanced, and the subscription will be 1s. per annum, to cover postages, printing of rules, etc.—Yours truly,

9, Chetwynd Road, London, N.W. OLIVER D. DAVIES.

* * * *

TONING SOLIO.

SIR,—In your issue of April 14th, your correspondent signing himself "Phosphate" gives a toning bath for "Solio." In trying this I had some difficulty in the quantity of gold given, viz., one gram, and not believing this to be correct (possibly a printer's error), I used one dram. I found my prints certainly toned quickly, but when dry were of a brown tinge, especially in the light portions. Would your correspondent kindly give me further particulars in your next issue.—Yours, etc., MAIDSTONE.

* * *

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

SIR,—My duties as Hon. Sec. and Treasurer having terminated, will you kindly allow me to inform your readers, that all communications intended for the London and Provincial Photographic Association must be forwarded to Mr. T. E. Freshwater, 3, Fleet Street, E.C., who is acting as Hon. Sec. *pro tem.*—Yours, etc.,

R. POULTER DRAGE.

95, Blenheim Crescent, W.

* * * *

LANTERN SLIDE BUREAU AND EXCHANGE.

SIR,—Will you allow me to call the attention of your readers to the fact that at the general meeting of the members of the National Society of Lanternists, held on the 3rd inst., Mr. W. T. Stead in the chair, it was unanimously resolved to form a "Lantern Slide Bureau and Exchange."

The rules provide that "slides shall be received on deposit from members and others, that are no longer in constant use. That upon depositing fifty slides and paying a subscription of 5s. per annum, every depositor shall be entitled to borrow any slides in the Bureau, not exceeding one set at a time.

"The slides deposited may be withdrawn from circulation upon giving one month's notice. Valuable slides will be insured. Gifts of 100 approved slides constitute the donor a Life member. Donations of £1 1s. also constitute the donor a Life member."

The society does a good work amongst the poor in London and our large provincial towns; the subscription is very small, only 2s. 6d. per annum. Members are drawn largely from the clergy, lay helpers, schoolmasters, and missionaries.

I trust, therefore, you will grant me this opportunity of appealing to your very wealthy constituency for donations and gifts of slides.

Those who have never been at a "lantern evening" in the East End of London, where most of the audience are hatless and shoeless, have but little idea of the immense pleasure they derive from lantern-slide pictures.

There are so many of your readers who have the power to help us that I sincerely hope there will be a large response to this appeal.—Yours faithfully, CHARLES W. HASTINGS, Hon. Sec.

215, Shaftesbury Avenue, London, W.C.

Catalogues.

W. BUTCHER AND SONS, of Blackheath, S.E., have sent us a neat little price list of their photographic and lantern novelties for 1893.

GEO. HOUGHTON AND SON, 89, High Holborn, W.C.

This firm have now issued a very complete and well illustrated price list of nearly 200 pages, which contains every requisite for photography. We hope within the next few weeks to notice some of the most important items of the same.

Photographic Procedure.

BY E. J. WALL,

Author of "The Dictionary of Photography."

SECTION VI.

DEVELOPERS AND DEVELOPMENT.

(*Continued from page* 264.)

Paramidophenol.—This was first described as a developing agent by Dr. Andresen in 1889. It forms greyish violet crystals, and has the formula of $C_6H_4OHNH_2$, and is not very soluble in water, but easily dissolved by an alkaline carbonate or caustic. When dissolved in solution of sodium sulphite, it will keep for a fairly long time, but, like all the developers, gradually changes colour, but even when thus darkened it still possesses its developing power without staining the gelatine. The colour of the image is a greyish black, without any yellowish tinge as with pyro. The image appears far quicker, and is generally much softer in character.

To prepare a stock solution, the best formula to use is undoubtedly Liesegang's, which is as follows:—

CONCENTRATED PARAMIDOPHENOL SOLUTION.

Citric acid	100 parts.
Distilled water	100 "

Dissolve by the aid of heat, and add

Paramidophenol	97 parts

The actual developer recommended by Liesegang is

Stock solution as above	1 part
Sodium sulphite	4 parts
Sodium carbonate	5 "
Caustic potash (10 per cent. sol.) ..	2 "
Water	50 "

It must be noted that Dr. Andresen's preparation is the hydrochlorate of paramidophenol.

By those who do not care to trouble themselves with the making of developers, the commercial preparation, Rodinal, will be found effective and convenient, and it is with this that all my experiments have been conducted, and it has invariably yielded good results in my hands, by the following method of working:—

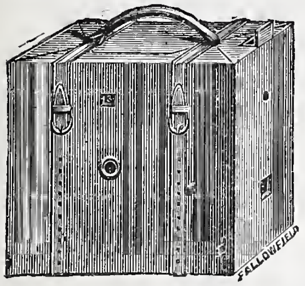
For normal exposures I use Rodinal diluted in the proportion of 1 : 30 with from $\frac{1}{4}$ to $\frac{1}{2}$ grain of bromide per ounce. In this the image appears very quickly, but will gradually gain in density, or if there is any delay the addition of more stock solution with bromide and a little time will produce the desired effect.

For over-exposure the best method is to dilute Rodinal with 20 parts of water and add from 10 to 15 gr. of bromide per ounce, but where only slight over-exposure is suspected the bromide may be reduced to 5 gr.

For under-exposure a very dilute developer should be used, certainly not stronger than 1 : 60, and plenty of time allowed. In such a solution the image will gradually appear, and as soon as all details are visible a few more drops of the stock solution may be added, till finally the strength is 1 : 30. In all cases of under-exposure allow plenty of time, and for special instantaneous work from half to three-quarters of an hour is not too long. Should any difficulty be experienced in gaining density, the developer may be still further strengthened to 1 : 20, and a few drops of bromide added.

Frequent complaints have been made as to want of density with this developer. Possibly an explanation of this is to be found in the fact that the image is a peculiar blue black which is not so non-actinic as that given by pyro, and therefore one has carry development a little further than usual, and a plate cor-

"FACILE" HAND CAMERAS FOR 1893.



With Rapid Landscape Lens, and Sunk Finder, giving identical view	£3 13 6
With 5 x 4 Rapid Rectilinear Lens, Sunk Finder, & Automatic Lens Protector	£5 5 0

Snap Shot Prints, taken with either of the above, sent on receipt of 3d. Stamps, or can be seen at any respectable dealer's.

Have U a "Facile"? If not, Y not?

Each lens is guaranteed perfect in definition and covering power, and if you have bought a "Facile" through any Dealer, or even secondhand, and fail to get the very finest results, write at once direct to Jonathan Fallowfield, as complaints are a positive novelty among the chorus of enthusiastic praises received daily.

T. E. LLOYD, Esq., writes from Garston, 6th March, 1893:

"I thought you might be interested to see a photo of a fire, taken at 1 a.m. on Wednesday, from my drawing room windows with your 'Facile' Hand Camera. It will be more interesting still when I tell you it was the only plate unexposed, and was left in the camera since my Scotch tour last August; so it speaks volumes for the perfection of the Camera."

S. WELLS, Esq., writes from Goole, 21st April, 1893:

"I have carried my 'Facile' many miles in the great Sahara desert under great heat, and as far north as Iceland and Lapland, and notwithstanding the difference in temperature it is good as new."

ALBERT C. MALKIN, Esq., writes from Liverpool, 7th April, 1893:

"I enclose a view from Pier Head, Liverpool, to show what the 'Facile' can do. I find it very successful. the negatives very sharp, and I have made good enlargements from them."

JOHN E. SULLIVAN, Esq., writes from Orchardton, 30th Nov., 1893:

"I received 'Facile,' and am greatly pleased with it in every way. It is simply perfection. I tested it to-day. I tried four plates all at different distances and they were all perfectly sharp to the edges, and the negatives all very good, which speaks well for the lens you fit to the 'Facile,' considering it was a dull day."

If you can't see a "Facile" at your nearest Dealer's write for 24-page Pamphlet and fullest particulars to

JONATHAN FALLOWFIELD,
CENTRAL PHOTO STORES,
146, CHARING CROSS ROAD, LONDON.

USE THE BEST,

And do not be led astray by inflated Sensitometer Numbers which mean nothing. The Warnerke Notation adopted throughout the world is all-sufficient, and there is no excuse for imitating the chaotic condition of things prevailing in weights and measures, Lens Flanges, and Thermometer Scales.

DON'T FORGET!

The Pall Mall EXTRA RAPID Plates, 25 W., 1/- per doz. quarters, are of absolutely uniform rapidity, and that, quicker than most of the brands sold as quickest in the world.

THE QUICKEST BAR NONE are Thomas's Thickly-coated Cyclist, 25 + or 28W., 1/6 per doz. quarters, on finest thin glass.

READ.

TABLE BAY, SOUTH AFRICA, 13*th March*, 1893.

DEAR SIRS,—I have no doubt you will be glad to learn the behaviour of your Dry Plates in this climate. I have been so very successful with your Rapid in spite of heat (having had to develop with the thermometer 95° in the shade, and with water too hot to be comfortable to the fingers, and the result all that could be desired under any circumstances) that I must express my satisfaction and compliment you on turning out such a plate.

I am now using your "Sandell," which I consider simply perfection. Some of the negatives of African foliage are a treat to look at, and show no sign of halation; boughs and leaves against a bright sky in a glaring noon-day sun, as clear and sharp as could be desired.

As long as you turn out plates like these, no matter who makes the MOST, you may I think claim to make the BEST.

I am, Sir, yours faithfully, H. MUNCASTER.

R. W. THOMAS & CO., Ltd.,
10, Pall Mall, London, S.W.

Telegrams, "Ruhtra, London." Telephone Nos. 35037—9365.

rectly developed with Rodinal would be considerably over-developed with pyro.

For instantaneous work and portraiture paramidophenol seems to be of great value, as it will give as much detail as pyro, and without any hardness in the high lights which one is liable to get. The claim made for this developer, that it will allow of a reduction of exposure, is without foundation, except that it gives such great softness and that the image flashes up so quickly as to give one the idea of over-exposure. This remark applies equally to the recent developers Amidol and Metol. We may accept, I think, as an indisputable and established axiom that light produces a certain effect on the silver salt, and that no developer can get out more than the light has done.

With paramidophenol and all the newer developers an acid fixing bath is to be preferred.

(*To be continued.*)

The Influence of the Hand-Camera.

By W. D. Welford.

(*Continued from page* 306.)

Illustrated Journalism has benefited considerably by the hand-camera, as witness the reproductions of shots in the *Pall Mall Gazette*, the *Westminster Gazette*, and other up-to-date periodicals. The hand-camera gives the power of depicting life and incident, which to the ordinary camera are impossibilities. This leads me to my last point in this section, but it is no way least. Indeed, I would lay considerable stress upon it. It is the influence of

Life and Character Studies.—As photographers we ought, I really believe, to feel a considerable amount of shame at the neglect of such a fine opportunity. If so be a hundred years hence it may be asked what has photography done, is the reply to be that it has produced pictures (at least the art photographer calls them so, though the painter will in no wise admit the fact), and pictures only? Certainly not. We can point to its use in astronomy, microscopic, medical, and many other directions, including the preservation of historic buildings and spots of interest. But will it not be asked at once, "Why did you not, with the ample means at your command, preserve for us the dress and fashion, the characters and incidents, the every-day life and bustle of the street?" Are we to answer that we sat at the feet of art masters who taught us so much about the diffusion of focus, the rules and canons of art, the composition, light and shade, freedom of treatment, idealism, realism, impressionism, and a few more "isms," that we either had no time, or were afraid to descend to such commonplace work as the life and character of the present century? I trust not, and sincerely hope a better account of our duty can be given. Here with the hand-camera we have the opportunity of portraying for posterity life, life with its joys and sorrows, its sunshine and shadow, its comedy and pathos. The hand-camera can in many cases do this better than the artist, and at all events we can do very much more in a given time. I have on many occasions fallen foul of photographic survey work, especially when any limitations of size or anything else debar hand-camera prints. Because that means the exclusion of life and character, which I firmly believe will have much more interest for future generations than these old mills, river banks, abbeys and castles, churches and publichouses (interior and exterior of each, of course), wandering brooks, etc. This may be stamped with the individuality of the artist; they may have clouds skilfully printed in from another negative; they may show the stream from the artist's house looking south, from the west, from the east, with the artist's house in the distance, and from round the corner; they may be sharp all over or sharp nowhere, but there is no life about them. Certainly, a farm labourer, say, may be introduced into the stream picture, but he will have his best go-to-meeting clothes on, be gracefully posed, and wear an expression upon his face a conjunction of care whether the cow is likely to get into the field, if this operation will keep him later at work, and whether he will get a copy of the print. We may also be able to show studies of natives taken in the studio, with impossible backgrounds and sitting upon papier-maché rocks, or standing in the street spruced up for the occasion, carefully posed, erect and manly, wondering what would happen if the show "bust."

After all, is there no art in the portrayal of life and movement? Is there no art in depicting the emotions and feelings by the expression upon the countenance? Are we to shut our eyes to the pathetic or humorous side of living nature? Must all art consist of dead tree-trunks, printed just in clouds that run over the trees and landscape as if they were not quite sure, where they ought to be, and streaks of sunlight caught on the spree?

Must we produce representations of nature in an intoxicated state, or, as Captain Abney expressed it, "makes one perfectly sick to look at"?

No, good army of hand-camera workers, let not your heart be troubled by this high art falutin. Keep steadily on the way of life and character, which is one of the hand-camera's strongest directions of work, and the future will bless you equally with those who portray nature rubber-stamped with their own originality or eccentricity.

I have wandered slightly from my subject, but the influence of the hand-camera is, and must be still more, felt in the direction of immortalising the men and women of to-day.

Mental and Physical Influences.—I now come to a somewhat more difficult subject to tackle, viz., the influences, physical and mental, of the hand-camera. I don't expect you will agree with me upon some of the points at all, for the reason that, until a man has become a really earnest worker of some experience, these influences can hardly be understood. The hand-camera, to my mind, exercises a considerable power of education, both mentally and physically. At all events, I have so found it. As the two points are so interweaved one with the other, it will be necessary to treat them together. The directions I refer to are principally increased speed of artistic perception, improving the vision, and quickness of action and decision. It is, perhaps, true that the class of work principally undertaken by each worker will make this point of lesser or greater importance. One who goes in for street work or rapidly moving objects will benefit more in these respects than the landscape worker. I still hold the opinion that successful hand-camera workers are born rather than made. Nevertheless, I cannot lose sight of the educational power of actual practice, for, speaking personally, the hand-camera has quickened my thoughts and actions to a not unimportant degree. Speed in work and thought in these go-ahead times is not to be sneered at, and I do positively assert that I can work at greater speed, think, and decide more quickly than before using a hand-camera. Take the question of focussing rapidly, and, to illustrate it best, let it be tried on a full-size focussing screen upon an approaching object. A few trials will prove how much more quickly it is possible to decide when actually sharp, and to fire the shutter, than it was at first. The whole question of thought and action following therefrom is quickened. To illustrate this, let me mention another capital test, that by electricity at the Aquarium, a test of vision and action. A pistol is held in the hand and a disc is watched. At a certain time a definite object passes this disc, and the task is to quickly fire the pistol, an electric arrangement of a black band registering the time that elapses between seeing the object and firing the pistol. Take any ordinary photographer (he must not be a shooting man, however), pit him against an experienced hand-camera worker, and the difference in the fractions of the second will be startling. Nay, further, let the hand-camera worker first try after a month or two's absence from the camera, and then, second, after he has been with it in the streets that day. He will be struck with the improvement. I therefore claim that the hand-camera so improves our vision, our thoughts, our actions, in the direction of speed as to materially alter even a man's character. He decides and performs the result of the decision more quickly. He becomes sharp, prompt, and decisive, and past hesitations vanish. The hand-camera therefore has considerable influence in altering the mould of the man.

I am ready to admit that the second division of influences may not appear of very much account, but am, nevertheless, convinced that, even if that is so, it is because I have not the ability to put these considerations before you properly. They wander afield somewhat from photography into other domains of study, with which I cannot claim much acquaintance as yet.

In conclusion, I claim for the hand-camera the following points:—(1) Increasing speed of plates; (2) improving apparatus generally; (3) causing greater attention to small work; (4) increasing the number of photographers; (5) naturalness of posing; (6) aiding illustrated journalism and the study of life and character; and (7) improving mental and physical action.

The paper is no weak-minded, cover-all-the-ground sort of attempt, but may almost be termed a fighting one. It is not hedged in with "buts" and "perhaps" and admissions or concessions, so as to prevent discussion or criticism. I have said what I believe and what I am prepared to defend from any honest enemy. And in that spirit I offer it to-night. In the words of Hamlet—

> "Our thoughts are ours; their ends none of our own."

The Pictorial Modification of Photographic Perspective.*

By H. Van Der Weyde.

EVER since I invented my system of reflected electric light, which I had the privilege of exhibiting in this room many years ago, and put aside for a time my palette, to join the ranks of the photographic profession, I have been made to realise as acutely as anyone the limitations, impossibilities, and shortcomings of photography. Not only have I felt that these limited my ambition while I was trying unconventional posing, but it has often been painfully irksome to have to explain the restriction of my powers to a class of sitters whom I may fairly describe as the non-photographic type. These sitters—and most of them, I must confess, are of the fair sex—are prone to lament that their hands (which they always try to hide)—to say nothing of their heads and waists—come out much too large. Others, again, fancy themselves much taller and slimmer than they optically, or perhaps I may say architecturally, really are, and I have always been compelled to admit that they are right—that is to say, visually right, artistically right—and that photography in their case could not do justice to one's visual impression. The invention which it is my privilege to submit to your notice this evening is, therefore, the outcome of necessity, and meets a great want which all leading men in the profession, and many amateurs, have long and keenly felt.

On few subjects, I venture to submit, has there been of late so much debate and so great a confusion of ideas as on that of the question of the truth of photography, and the value of its services to art, which latter have been most generously and freely admitted by the greatest masters of the brush amongst us. But now that we are attempting to correct figure, portrait, and landscape photography, I think the time has arrived when we may usefully attempt to analyse it, and appraise it at its actual value; the more especially as I am convinced, from careful observation of the work of some of the best draughtsmen and painters of to-day, that the close study of photography is ruining their judgment and vitiating their appreciation of the beautiful. Eloquent proofs of the baneful effects of the new creed, that photography cannot lie, appeal to us on every hand. Take up, for instance, the current number of the *Century Magazine;* here we find a draughtsman of the first rank permitting himself to draw horses in action as no other man has ever drawn them and as, I venture to add, no human eye has ever seen them. Obviously he has studied instantaneous photography, and honestly believes that he is taking a fearless and conscientious new departure in pictorial art in the cause of truth, obvious of the fact that the camera registers a section of an action immeasurably more minute than the eye of a man can chronicle and convey to the brain, and, therefore, he depicts what he has never seen, depicts what is to all practical purposes an untruth, a state of affairs of which no human cognisance has or can be naturally taken. Similarly, we see portraits now-a-days painted under a like influence. Time was, about half a century ago, when artists, obeying the behests of fashion, painted heads, hands, and feet absurdly small. Photography, no doubt, is responsible for the reigning reaction. The tendency of town dwellers—the professional class, artisans, tradesmen, etc.—who get little exercise for their whole bodies, and use their heads and hands only in the struggle to earn a living, is to beget a large-headed, small-bodied race, while those who from early youth get plenty of exercise—the privileged classes, the aristocracy, the agricultural labourers, and even the miners—are noted for their more symmetrical or classic proportions, and their well-posed, small heads.

We see at the Royal Academy, the Salon, and elsewhere portraits disfigured by enormous heads, hands, and feet, looking for all the world as though their outlines had been traced from an enlarged photograph originally taken with a short focus lens. We see figure pieces intended to carry us back to classic times, which would be delightful and perfect but for something which takes away their ideality, which makes them too familiar, almost vulgar. What is this something? It is, that we instinctively recognise in the figures the type of the modern town-bred model, or of the sedentary professional race, perhaps members of the artist's own family. It is not, however, given to every painter of classic subjects to so appreciate and adore that perfect harmony of a classic form as to be able to be true to, and resist the deterioration of, his ideal through the constant contemplation of his models, and the baneful influence of optically distorted photography.

Science protests that photography cannot lie. Well, optically it cannot. I have been trying to put my argument into a nutshell. I may not have succeeded, but there it is for what it is worth—optical truth is not visual truth. This may seem very much like a paradox, but the dictionaries are so singularly unaidful to me in my dilemma, that, for the sake of argument, we must let it stand for the present. The force of the statement is, however, one which the future must speedily recognise.

Optical truth, then, as far as photography is concerned, is the result of a mere mechanical impression on a plate, which is sometimes more wonderful and beautiful than anything the human hand could fashion; but which, on the other hand, is sometimes so brutal in its fidelity, and microscopically vulgar, as to give one a very disagreeable surprise.

Visual truth is a very subtle quality. Its appreciation depends on the observer's artistic sense and powers of comparison. I would go as far as to claim it as an hereditary quality which different people possess in different degrees.

There is a great distinction between it and optical truth, or the truth of the camera. The camera focusses every spot at the same instant, without favour or prejudice, uninfluenced by natural selection. The impression on the brain, on the contrary, is affected by all these things. The eye focusses only one portion of an object at a time, and whilst the rest of such an object is within the diffused vision, the impression on the brain depends on the temperament, and the more or less artistic environment of the observer; the brain instinctively and unconsciously recognises the quality of distance. In portraiture we have to please the family, the relatives, and the friends of the subjects—those, in short, who are most familiar with their appearance; and in their case, the visual truth is the outcome of loving and friendly contemplation. The first essential for a successful portrait painter is that he should be sympathetic, possess a great deal of the milk of human kindness, and love his fellow-man. These are the gifts that will enable him to approach his sitter in the family spirit. When he paints a portrait, say of a sweet old mother, he unconsciously tones down and modifies the optical truth, and, guided by the visual truth, he accentuates the air of distinction and spiritual dignity which his own refinement enables him to see and appreciate. But the photographer, though he be a born artist, and ever so appreciative of these qualities in his sitter, is cribbed, cabined, and confined within certain limitations and poses. It is almost useless for him to study the work of the great portrait painters; for the moment he copies an unconventional pose, say with hand or foot extended towards the camera, he produces a libel, and I defy any one to judge of the actual size in proportion to the body of the extremities of a sitter, when thus brought forward in a photograph.

It has been advanced by some that this distortion can be overcome by a long-focus lens at a long distance; but although it does partially reduce it, the conditions are unnatural, and the portrait loses that subtle yet powerful effect which makes one see the sitter in one's very presence, what one might call a "speaking likeness" effect, to obtain which it is essential that the point of sight, whether optical or visual, should have been within a conversational distance. A long distance immediately suggests a theatrical effect, unsuitable for the portraiture of private people. Whether this view is correct, or would only occur to one having the knowledge and practice of these distances or points of sight, is perhaps open to discussion.

I will now give you a number of pictorial illustrations by magic-lantern, showing the difference between optical and visual truth, produced without changing the lens in front of the camera or the distance from the sitter. I will also show you the wonderful possibilities of this new power by a single humorous illustration, using a photograph of Mr. Marshall P. Wilder, that quaint American humourist, for my subject. I will also take a portrait by my light in an unconventional pose, and correct before you its inevitable distortion, and afterwards give you, as well as I can, a scientific explanation of my invention.

Before I had brought my invention to its present state of adaptability, I found I had to solve five problems:

(1) To reduce locally the size of a head or hand, or other portion of a figure, and to do it symmetrically, so as not to change the character or symmetry of a head or the expression of a face; or, in the reduction of a hand or waist, to reduce, if desirable, the width only, and thus give a slender instead of diminutive effect.

(2) Having solved this first problem—how to find a way to make a number of corrections in one negative at the same time, and with such simplicity and rapidity as not to call for special skill or training, or materially lengthen the time usually occupied in focussing during adjustment.

(3) To shorten or to lengthen a portion of the whole negative right across without distorting the rest, such as lengthening the waist or skirt of a lady's dress, or, in the case of a landscape, to vertically enlarge the middle distance or horizon while reducing the depth of foreground and sky.

---

* Read before the Society of Arts.

(4) To obtain with each lens a variable degree of the modification of the dimensions of the parts corrected, so as to avoid the necessity of employing a great number of lenses to form a working set.

(5) To find a readily-fashioned refracting medium, so as to enable one to make at will eccentric alterations, or even distortions, especially suitable for the purposes of caricature.

The first problem I solved by the interposition in front of the sensitive plate of a supplementary lens. Although I claim this interposition as part of my invention, the abrupt ending of the curve of an ordinary lens would not only throw a shadow or dark zone upon the negative, but the abruptly broken-off lines and shades on the outside of the zone would not tally with those on the inside. I, therefore (and this is the germ of my invention), continually vary the curvature of my lens until it reaches the plane—in other words, where the circumference of a plano-convex lens would otherwise stop—it flows or graduates into the reverse or concave curve or, if plano-concave, *vice versa*, and thus gradually merges by a wave-like line into the plane, with the result that the dark zone before referred to, consequent on the use of an ordinary lens, is replaced by a perfectly natural gradation, leaving no evidence whatever of the correction having been made.

The second problem I solve by providing a number of small lenses, each constructed on the above-described principle, and means of invisibly and adjustably supporting them in the pencil of rays.

In problem 3, to enlarge a portion only, such as the distance of a landscape, or to lengthen portions, such as the skirt of a figure, I interpose a plate of glass, a portion only of which is of a cylindrical form, flowing gradually into a plane.

I solve the fourth by so arranging these lenses in the camera as to be readily moved backwards and forwards, thus varying the amount of the reduction of any part by change of focus. About a dozen corrector lenses will thus be all that are required to form a working set for ordinary portraiture.

To solve the last problem, I have found a readily-fashioned refracting medium, but as it requires considerable artistic skill to use it, and there are many difficulties to be overcome in its practical use, I am not in a position yet to bring it to your notice. It is embodied, however, in my patents.

It is easily seen that to use these corrector lenses requires no special training; only an eye for natural or visual proportions. That it is readily abused and dangerous in the hands of the stupid and ignorant only proves its wonderful pliability and adaptability in the hands of an artist, and instead of there being any drawbacks to its use, such as an increased time for exposure of the plate, on account of passing through more glass, the fact that the rays of the image are converged upon the parts rectified increases the brilliancy of the image, and it is found that the time of exposure is actually decreased.

This new power has many possibilities which you can readily imagine. I prefer at present to hide from you other evidences of its versatility in the domain of caricature, wishing only to advance the cause of that which is the more beautiful and true. In this I have been encouraged by Sir Frederick Leighton, than whom we have no greater exponent of the beautiful in form, and who, on a recent occasion, when visiting my studios, to investigate this invention, expressed not only his surprise, but his delight at the startling artistic gain, and the consequent visual veracity of the images I am enabled to produce.

Experts in optics are apt to have no sympathy or ear for the claims of art, and some will doubtless declare that optical truth is the only truth, and any correction a distortion. I was, therefore, doubly pleased when I brought this invention before the Camera Club the other evening to receive the congratulations and praise of its President, Captain Abney, the most advanced scientific expert in photography of the day. Unfortunately, he is prevented from being here this evening by an accident.

Hereafter, we shall be able to make pictures which will not only tell us the visual truth, the real truth to our minds and hearts, but also tell us something of the individuality of the photographer, thus raising one branch of photography another step towards becoming a fine art.

In conclusion I would point to the examples I have shown you, and ask if they do not furnish an irrefutable proof of my assertion that optical truth is not visual truth.

* * *

Amidol and Metol Hauff.

By D. E. Goddard, F.R.M.S.

The advent of the hand-camera and the hold it has obtained among a large number of enthusiasts has rendered it necessary to make a study of the various developers in the interests of those who are unacquainted with photographic manipulation, or whose experience in development is almost nil.

For some considerable time our attention has been shared alike by pyro and ammonia, pyro and the alkaline carbonates, ferrous oxalate, and quinol. Recently rodinal and amidol came to the front; these have been followed by metol. We offer a few remarks on amidol and metol.

Amidol prepared according to the printed instructions issued by Messrs. Fuerst Bros. is a great boon to all amateurs, especially to those who have been in the habit of sending their Kodak or Frena films to be developed by professionals.

The stock solution is:

Amidol	80 gr.
Sodium sulphite	800 ,,
Water, distilled	8 oz.

For use: 1 part of stock solution to 3 or 4 parts water (distilled).

This is simplicity itself, very effective, very safe, very clean in working, no staining, no fog. In four minutes the action is finished. It can be rendered slower in action, if required, by the addition of water. In fact, if the printed directions are followed, in a very short time, probably in the first batch developed, it will be mastered. Still more valuable will amidol prove if used *dry*, added just before using to a stock solution of sodium sulphite.

The success of amidol depends on the chemical purity of the sodium sulphite. The formula we like the best is that known as Swan's, viz.:

Stock Solution.

Sodium sulphite (chemically pure)	1 oz.
Water (distilled)	40 ,,

Add before using 4 grains amidol to each ounce of stock solution.

This is a splendid developer; detail and density can generally be obtained under favourable circumstances in about four minutes. In working with either formulæ a number of plates or films can be developed one after another in the same bath. This, however, is not the way to get the maximum usefulness; if that is wanted, we use each bath fresh, or at the outside do not develop more than two plates or films in the same solution. The best results with amidol standard stock solution will be obtained by the use of freshly mixed developer.

Good and valuable as amidol is, used as directed, we consider that metol (although of a later date) is far more valuable.

The concentrated formula is as follows:—

No. 3 Formula.

Metol	130 gr.
Dissolved in water (distilled)...	1 pint.
Then add—	
Sodium sulphite (chem. pure)...	2 oz.
Sodium carbonate	2½ ,,

For landscapes use one part stock solution to two or three water distilled.

This brings out all detail that would be rendered visible by pyro and the alkaline carbonates, without any of the disadvantages. There is no excessive density, no staining, no frilling. With ordinary care and watching, failures will seldom occur, and when they do, probably the developer will not be to blame.

Rodinal, amidol, and metol Hauff are all valuable to the tyro in hand-camera work. We prefer amidol to rodinal, amidol dry to the stock solution, but metol to either. We still, however, maintain that our old friend, pyro and ammonia in patient and experienced hands is capable of doing everything that its rivals can do, and will probably hold its own as being more easily modified, to meet requirements of each particular necessity.

We would strongly advise those "going in" for hand-camera work this season, to select amidol or metol, and stick to the one selected; if not acquainted with or experienced in development, with pyro and ammonia. For snap-shot work on river or sea, or for street scenes, we find better results are obtained by using metol stock solution No. 3 undiluted.

* * *

Staffordshire Phot. Soc.—The first excursion took place April 29th to Congleton and Astbury; it was well attended, and good pictures were obtained between the showers. The monthly meeting was held on 2nd inst., and a report was received from the Institute Committee and a deputation appointed to meet them, with a view to the Society's co-operating with the Institute Committee in the instruction of photography as a branch of technical education The report and award of the monthly competition was received, and arrangements made for the next monthly competition. The President, Mr. E. B. Wain, then gave an interesting and practical demonstration on the working of the Platinotype Company's new paper, cold-bath process, with glycerine and brush development, and discussion followed.

Dry Plate Making at Home.

BY R. CHILD BAYLEY.

(Continued from page 305.)

FILTERING AND COATING.

SHOULD the emulsion have been put aside to drain for a whole day and night, it will in all probability have lost as much water as necessary, and will have assumed a fairly firm consistence. Should it not have been practicable to allow it to drain for such a length of time, it will be found advisable to pour into the middle of the ball of emulsion 2 oz. of alcohol, *not* the methylated spirit now in the market, and after a few minutes to squeeze as much as possible of it out again. It is then ready to be melted up once more.

For this purpose the mass of jelly-like substance in the cloth should be turned into a clean jar or beaker, which can then be stood in a saucepan of water at a temperature of 130 deg. F. With occasional stirring in about half an hour the whole will be fluid and ready for the final operation before coating the plates. Into the liquid emulsion should be poured 10 minims. of a 1 per cent. solution of chrome alum in water, and an ounce of absolute alcohol, and the liquid well stirred. It can now be poured into a bag formed of four thicknesses of cambric, and allowed to filter through into a beaker, which it will do with fair rapidity. Another excellent method of filtering consists in tying a piece of wet chamois leather over the bottom end of one of the glass chimneys, used with the petroleum lamps with ring-shaped wicks now so common, pouring the emulsion into this, and by applying the mouth to the top of the chimney, forcing it through the leather with a little gentle pressure.

The plates having been cleaned in the manner before described, should be placed for an hour or so before coating on a sheet of glass on a dish of hot water. By this means they will be warmed through. The bottom, being the hottest, will by the time it is coated be at about the same temperature as the top, on which operations were begun. There are several ways of coating the plates which can be adopted, but that which the writer has found both the easiest and the quickest is as follows:—

Round the levelling slab, after it has been carefully levelled, is wound thin string at intervals of about two inches, care being taken that the knot is on the under side of the slab, and that the string does not come between the slab and the nails or screws supporting it. On the slab thus covered are laid the plates side by side, a little distance apart, until it is entirely covered. Then the filtered emulsion having been poured, without bubbles, into a suitable vessel—an invalid's cup or a little cream jug answers excellently—the pourer being held in the left hand, a pool of emulsion is poured into the centre of the plate. This is rapidly spread over the plate by means of a glass rod held in the other hand parallel with the surface of the plate and almost touching it, rocked once or twice, and left to set. The next plate is treated in the same way and so on until all those on the slab are coated, when after being left a few minutes they will be found to be set and can be stood up in racks to dry and a fresh lot laid upon the slab for coating. It will be found easiest to commence by coating the right-hand plate furthest from the operator, and to do all those furthest away first. Some people prefer to hold the plate in a pneumatic holder, pour a pool of emulsion into the centre of the plate, and by tilting cause it to flow into each corner in the manner somewhat in which wet plates are coated with collodion, after which they are placed on the slab to set. This method may be the easier when once the knack of doing it is acquired, but the beginner will most probably do this at the expense of putting the greater part of the emulsion up his sleeve, on the floor, or anywhere but on the plate, while in the former case, with a very little care he will most likely be able to coat his third or fourth plate to the edges without spilling a drop.

It is a very good plan, at first at any rate, to use a little measure filled up to a certain mark for all plates of the same size, since it leads to a uniform thickness of film; but after a little practice this will be found unnecessary, and the proper size of the pool of emulsion to be poured on the plate will be readily seen.

The plates should be allowed to remain upon the levelling slab until they are thoroughly set, and can then be reared up in the racks and placed in the drying cupboard. In most text-books advice is given to dry the plates horizontally, but there seems to be no reason for this should they once have become well set. Gelatine once set requires a higher temperature than was necessary in the first instance to melt it, and there is far less chance of any dust settling on the plates when in the vertical than when in a horizontal position. There is another point in favour of vertical drying, and that is the great ease with which a current of air is kept up over the surface of the plates. I have recently fitted up the chimney of an unused grate as a drying box, and it has been so effective that where possible such an arrangement seems preferable to any drying box. When filled with plates, placed not more than an inch apart without any flame or other aid to the formation of a draught, all dry easily in twelve hours. All that is necessary is to provide a light trap top and bottom, as described above, for the drying box, and a light-tight door.

The directions which have been given above should be sufficient, the materials being suitable, for the first batch of plates to be successful. But should the results from any cause not be all that is desired the time spent in making them will be far from wasted. After a few trials it becomes much easier to perform the various operations in the dark-room than was the case at first, and a little preliminary practice will be found of the greatest service, and be well worth the cost of a few ounces of emulsion. It is not to be recommended that the batches should be of less than the quantities given above, as within reasonable limits it will be found easier to make a large than a small amount of emulsion at once, and less than the quantity named does not allow any margin for the waste which is sure to occur at the first two or three attempts.

THE AMMONIO-NITRATE METHOD.

A variation of the plan described in the foregoing was introduced by Dr. Eder, of Vienna, which is most suitable for platemaking at home. It consists in obtaining rapidity, not by boiling, but by the addition of ammonia to the emulsion, in the way we shall proceed to describe.

On adding a strong solution of ammonia to a solution of silver nitrate in small quantities at a time, a brown precipitate of silver oxide is first formed, but on continuing to add ammonia this precipitate redissolves. By using the resulting solution in place of the silver nitrate solution in the process described above, we shall get an emulsion without boiling almost as rapid as would have resulted from boiling without ammonia. A simple formula, and one giving excellent plates possessing about the rapidity of most *ordinary* plates in the market is as follows:—

Silver nitrate	175 gr.
Water	2 oz.

Just enough strong solution of ammonia is added to redissolve the precipitate.

Nelson's No. 1 gelatine	30 gr.
Potassium bromide	143 ,,
Water	3 oz.

The potassium bromide should be dissolved in the water, and the gelatine then added and allowed to swell.

Heinrich's gelatine	200 gr.
Water	3 oz.

The three solutions having been prepared, the vessels containing them should be stood in warm water, *which should on no account be above* 110 *deg. Fahr.*, until the gelatine in both is disolved. Then in the dark-room the ammonia silver nitrate is added to the gelatine containing the bromide in the way described in the former process, and the other gelatine added as soon as all the silver has been well stirred in. The emulsion can then be poured out to set, and treated exactly as described for the boiled emulsion. It should be made up to ten ounces in bulk by the addition of water before filtering, should it not occupy that volume without.

The resulting emulsion should be viewed on a piece of glass by transmitted light, when it should appear of a bright blue colour. Its speed is increased by allowing it to set in a water bath, filled with water at about 80 deg. Fahr. This will very much lengthen the time required for setting, and will consequently allow the ammonia more time to react upon the silver bromide.

It will be noticed that this emulsion contains no iodide; I have not found any advantage in the presence of iodide in an emulsion made by the ammonia process, so that it seems unnecessary to add any. The resulting plates should be of a very white colour, and will fix with much greater rapidity than when iodide is present. There seems to be a difficulty in developing them with pyro and ammonia, to which they do not take at all kindly, but with pyro-soda, or pyro-potash excellent results can be obtained. From an amateur's point of view the ammonio-nitrate method is a most suitable one, both from the ease with which the various operations can be performed, and from the fact that minute variations in the quality of the ingredients employed do not appear to affect the results to anything like the same extent as in the other processes.

There are two points in connection with the latter formula to which attention must be given. The first relates to the illumination of the dark-room, which must be by means of ruby light only. Captain Abney has shown that while bromo-iodide plates are almost insensitive to yellow light, this is far from being the case with pure bromide, and consequently it is advisable to use nothing but ruby glass in their preparation. For developing purposes, on the other hand, the plate is exposed for such a comparatively short time to the action of the light that more illumination may be safely indulged in. The other point to which attention should be given is the temperature of the solutions. Not only should the bromised gelatine and the ammonio-silver nitrate not exceed 110 deg. Fahr., but care should be taken that this is the case with the second portion of gelatine.

From some unexplained cause, plates prepared by this method will not keep for any great length of time; still, this is hardly a matter of great importance to anyone making a few at home, as for a good many weeks, at any rate with a reasonable amount of care, they should remain in first-class condition.

(*To be concluded.*)

* * *

Retouching.*

I AM given to understand that you expect of me something more than a lecture and will not be content with less than a demonstration. You prefer to see things done rather than talked about, and I will try to make my paper as practical as the nature of the subject admits. It must, however, be remembered that retouching is emphatically not a demonstrative art. Good retouching is essentially modest and retiring. Its very existence is unsuspected by many who admire the results produced by it. It is the Cinderella of the photographic arts, and its lot is generally to work without recognition or acknowledgment. I do not suppose I can act the fairy prince and raise it, by anything I can say to-night, to honour and esteem amongst amateur photographers, but I should be glad if I could at least cause you to consider whether a very useful and, in portraiture, I might almost say an indispensable art is not neglected more than it deserves to be. My own experience gives me grounds for assuming that it *is* neglected by amateurs because, although I have met with amateur photographers excelling in many branches of photography, I have never met with an even passably good amateur retoucher. The professional photographer, on the other hand, is very fully alive to its advantages and is generally supposed to love it "not wisely but too well." How is this neglect to be accounted for? Are amateurs deterred by the apparent difficulty of the work, or do they look askance at retouching as an illegitimate tampering with the truth of a photograph?

If you examine carefully the work of a really competent retoucher on a head that has required clever treatment, it is quite possible that you may feel a little discouraged at the evidence it shows of a high degree of skill which it is perfectly evident must be difficult to acquire. It must seem to the average amateur photographer that the time and patience necessary to attain such great proficiency would not be worth the while, and that he would do better to confine himself to landscape and subjects where want of retouching is not so apparent. But after all, the proper study of mankind is man, and I suppose there was never an amateur, however unambitious, but who cast longing eyes on portraiture. Luckily, retouching is an art that pays good returns for small investments of time and thought spent upon it.

A very little skill if supplemented by intelligence can be made of great use, and I feel perfectly sure that the most casual amateur would not find that any time given to learning the rudiments of the art was spent without result. If you are careful and resolute not to put any work on to a negative you do not know will be an improvement, however little work you are at first able to do will be of advantage to your picture, even if it is confined to removing obtrusive defects or blemishes on the skin or mending up neatly mechanical defects in the negative. Even such humble work as this will often make a negative satisfactory that could not be acceptable without it. If you learn how to get a suitable surface on your negative to work upon and a properly pointed pencil to work with, you can get thus far without much difficulty, and I hope to-night to be able to teach so much to everybody here who cares to learn. As soon after as sufficient delicacy of touch is acquired to, if necessary, work on the negative so finely that the touches do not show when printed, further progress can be made towards retouching a head more completely.

I have besides heard of conscientious photographers being deterred from practising retouching by an exaggerated respect for the truth of a photograph. But the inviolable truthfulness of a photograph is an unconsidered idea—an average photograph is, in fact, one mass of inaccuracies and its irregularities are only too apparent to anyone examining it with the slightest care.

In comparing a photograph with the object presented by it, the most noticeable variation of the photograph from the object as seen by the eye, is generally its failure to render colour. This we are, of course, prepared for, and I am sorry to say even retouching cannot make good the omission, and for this reason we are not concerned with it to-night.

There are, however, other particulars in which photography seriously falls short of an ideal expression of the object photographed, and in most of these retouching can render very material assistance.

Take, for instance, the modification of tone by colour, and this in itself is sufficient to prove the utility of retouching. Colour exercises a seriously disturbing influence in the rendering of tone by a photographic plate, and no object in which there is a great diversity of colours can be rendered in a photograph in its proper relation of tones.

In a photograph reds and yellows will be represented much too dark, while the colours at the other end of the spectrum, the blues and violets, will be lighter than they should be. The introduction of isochromatic plates has lessened this fault, but the correction has only been partial and incomplete.

An engraver rendering an oil painting, or an etcher working from nature is able to put aside colour altogether, and to express his subject by the proper relation of its tones to one another. If he gets a red and a blue together it makes no difference to him; he expresses them simply as tone values, and according to their depth or intensity as seen by the eye. In a photograph everything is distorted by the influence of colour, a red and a blue together send their relative tones flying wide apart was exaggerated and untrue that the merest novice in retouching could see the inaccuracy, and to some extent correct it.

Consider for a moment the effect of the colouring of the human face on a photograph.

Here we have an object with such varied colour and tone that it is almost impossible to get a passably truthful representation on a photographic plate. Take a fair subject with a high colour and a freckled skin, and if you want to make a bitter and implacable enemy for life show your subject the result untouched. Every freckle and imperfection in the skin that in life are not noticeable, and in the reduced size of a cabinet or carte photograph could not be seen at all, stand out harshly and obtrusively, and the unfortunate subject looks as if a charge from a shot had been distributed over their face. The glowing colour in the cheeks again, which in life would be a charm, is rendered in the photograph as a shadow, and gives an unnatural hollowness to the cheeks and a sunken appearance to the face; the hair, again, being a warm tone, is sure to be rendered darker than it should be, while the eyes, if blue or cold grey, are lighter. The effect in extreme cases is horrifying, and in all cases inaccurate. A photograph is often described as "justice without mercy," but this should only be when it is retouched; in its untouched state it is generally "justice without mercy," with the justice left out.

Of course, I have put here an extreme case. Some of us may be fortunate enough to keep through life the bloom of youth on our complexions, and preserve a skin unsullied by freckle or blotch, but we should then feel all the more keenly the fragrant injustice of representing the face blotched and uneven by the variations of colour in the skin unseen by the eye. An interesting illustration on the effect of colour on the skin was reported in the photographic press some months ago, when the photographs of a sitter in the earliest stages of fever revealed indications of the disease on his face long before they could be detected by the eye.

But even if there was no colour to deal with, although the tonality of photographs of most subjects would be very much improved, it would be very far from perfect. It may be possible to make a negative from a subject in monochrome in which the tones shall have true value, but it is extremely difficult, and depends on the exposure being timed with great accuracy, and the development being carried on with the greatest skill.

If it is under-exposed the tone will be hopelessly extended and grades lost at both ends of the scale, some being smothered in the shadows and others lost in the lights.

Again, take the form of an object in its simplest expression as shown by its outline. Here we have no colour to confuse the form, and the shape does not depend on gradations of tone; but even under these simpler conditions we are not sure of getting an accurate representation by photography.

There is the distortion of the lens to be taken into account, and in an object having much depth the front or part nearest the lens will be of an exaggerated size compared with the part more remote, especially when the lens used has not much depth of focus.

I have reminded you in this way of some of the shortcomings of a photograph, because unless it is clearly seen how imperfect a photograph must necessarily be, there is no excuse for meddling with it.

But whether you photograph landscape, figure, or portraits, you will seldom take a negative that could not be considerably improved by intelligent retouching.

For portraiture it is indeed absolutely indispensable, and the professional portrait photographer owes his very existence to it.

Before it was understood that a negative could be worked upon freely and successfully with a lead pencil, portraits were almost invariably taken of small size, generally of full length, with tiny heads too small to show the imperfections, and photographs of this period are generally found to have been clumsily posed full length carte-de-visite size. The advent of retouching brought an immense extension of business to the photographer. Now large heads are generally made almost in the other extreme, and there is not a photograph sent out by any photographer of repute that is not from a negative that has been through the hands of the retoucher, and generally to its great advantage.

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* A lecture delivered by Mr. E. C. Morgan (of Morgan and Kidd) before the Richmond Camera Club, April 24th, 1893.

Let me draw your attention for a moment to an example I have here—it is not an extreme case, but it will serve.

It is a negative I picked out from only a few I looked through, and is an every-day subject with the retoucher.

The lady is not suffering, as she appears at first sight to be, from the ravages of some fell skin disease. You will notice she has rather a pleasant smiling expression not appropriate to one in pain.

It is, in fact, nothing half so serious; she has merely been out in the sun, or has used the wrong soap, the one that is *not* matchless for the complexion, and has got a few freckles, slight imperfections barely apparent to the eye, but which are maliciously rendered by the lenses as great blotches and splashes having a perfectly horrifying aspect. I have retouched the negative and made another enlargement from it, and I think you will agree that it is not only a more pleasing portrait, but also much more convincing as a likeness.

The retouching is not flattery, it is an act of simple justice. I willingly acknowledge that, like all useful things, the practice of retouching can easily be carried to excess. It must be confessed that it is often used in such an illegitimate manner as to call down upon the art sharp and well-deserved criticism.

A fashionable photographer will think nothing of carving away a substantial piece of a lady's waist if it is not in the same proportion as that of a figure on a fashion plate. He will straighten a nose as a matter of course, if it happens to be a little too retroussé or pronouncedly Roman, tint grey hair, and entirely eradicate wrinkles and marks of age of all kinds.

(*To be continued.*)

A Club Excursion.

BY THE MAN ABOUT TOWN.

THE ambitious amateur who is no longer desirous of hiding his light under a bushel decides at length to quit the ranks of the noble army of unattached, and straightway goes and joins the society of his locality. At the outset of his new photographic career he is a most enthusiastic supporter of all the various functions of the club, so that as soon as he is informed that it is proposed to have an excursion to a selected spot, he decides to make one of the party. The first experience of such an outing is to him fraught with a certain amount of novelty. It is therefore our intention for the time being to take upon ourselves his personality, in order to record as accurately as may be the train of events passing before him throughout the day.

The day chosen for the outing is, perhaps, a Bank Holiday. The arrangements are made with those who intend to form the party, to meet at the station in time to catch a specified train. A few minutes before the time named a number of individuals carrying apparatus not unlike fishing tackle may be seen hurrying in the direction of the ticket office. Some might imagine that they were a jolly angling party, were it not for the fact that the said "anglers" are minus the stone bottles of goodly proportions containing necessary sustenance for the inner man. It must not be supposed, however, that there are no bottles at all about, for one or two of the party have flasks secreted somewhere which, when produced, will be found to contain something more palatable than "developer." Our excursionists are, however, in a certain sense "anglers," for we shall shortly hear them talking about "wide-angle," "angle of view," etc.

The train now steams into the station, the party finds out the most comfortable carriage and seats itself, the whistle shrilly pierces the morning air, and we are on our way to some cathedral city, our indefatigable Secretary having obtained permission for us to photograph the interior, providing that Divine service is not in progress. The erudite ones among us immediately commence a learned discussion on some abstruse subject that is far beyond the ken of the simpler-minded mortals. Someone thereupon suggests that those who know how to play shall take a hand or two at that wicked game "nap," a pack of cards is mysteriously produced from apparently nowhere, and soon the short, sharp cries of "How many?" "Two!" "Three!" "Pass!" etc., mingle with heavy verbal artillery such as "anastigmatic," "isochromatic," and "Tele-photographic." Thus the time passes swiftly away. We make our first stoppage after travelling about forty miles, and some of the party who have meanwhile developed a fine healthy thirst hereupon make a wild dash for the refreshment bar; but as soon as they arrive at the door, after a sharp platform sprint of a hundred yards, during which the record for that distance must have been smashed to atoms, the bell announcing the immediate departure of the train commences to ring, a wilder dash back to the seats being the result. General experience seems to emphasise the fact that one of a porter's standing jokes is to wait until a scrimmage occurs round a refreshment-room, and then to clang the warning bell.

At length we arrive at our destination. After the cravings of the inner man have been lightly responded to, scouts are despatched to ascertain how the land lies. They duly return and report. If their report is favourable, we prepare for action and enter the sacred edifice. After a little fatherly advice from the verger, those members who make architectural subjects a speciality, and therefore are—or at least consider themselves to be—authorities on the matter, instruct us as to the best position to take up and what the exposure should be. Wide-angle lenses are in requisition; those who are not fortunate enough to possess one go a-borrowing—and afterwards a-sorrowing when they find that they cannot get one for love or money. Leaving someone in charge whilst the plates are being exposed, we take a ramble through the ancient building, noting with awe the time-eaten walls and monuments, and the steps that were worn away centuries ago by the weary feet of countless pilgrims.

When we have satisfied ourselves by exposing a sufficient number of plates, we gather up our goods and chattels and take our leave—not forgetting to distribute the usual tips which are religiously anticipated.

A most worldly-minded individual hereupon suggests that before any further work is commenced we shall have dinner. Such a mundane subject as eating and drinking grates upon the refined and cultivated ears of several of the scientific ones, who for the past quarter of an hour have been deeply engaged discussing the best means of photographing the North Pole with a tele-photographic lens stopped to $f/1063$. Thus was another scientific discovery nipped in the bud and lost to the world for ever. The learned ones, however, peaceably submit to the inevitable, more especially as they themselves are not quite indifferent to the onslaught of the hunger fiend. We, therefore, adjourn to the hotel where we have arranged to dine. What tremendous appetites we all possess! Swiftly do the viands disappear (and by the bye some of those present *can* eat, being the champions of the club in this particular branch), and presently, like lions refreshed, we emerge once more into the open and make another start upon the war path; the party gradually tailing itself off into twos and threes, who search the country round for rustic nooks and wayside pictures in order that they may give the same photographic immortalisation.

The simple-minded inhabitants of the outlying villages favour us with an ever-widening stare as we pass by them, cameras in hand, prepared for immediate action; but some of the cheeky urchins, whom nothing can abash, not even the presence of the omnipotent local policeman, are not content with broadly staring but continue to execute a wild war-dance, that would have made a tribe of Choctaw Indians turn green with envy, all the time shouting out, "Take our likeness, guv'ners!"

A man and boy here come along, who from their ragged and battered appearance are seemingly representatives of the very poorest class in the locality; the expression on their respective countenances bespeaking but scanty enlightenment. Someone thinks that these two specimens of humanity deserve a plate, so he addresses them thus:

"I say, would you mind my taking your portrait?"

"Gie us a penny then," replies the boy, whilst the man only stares and opens his mouth.

"What will you do with a penny?"

"Buy beer!" is the immediate reply.

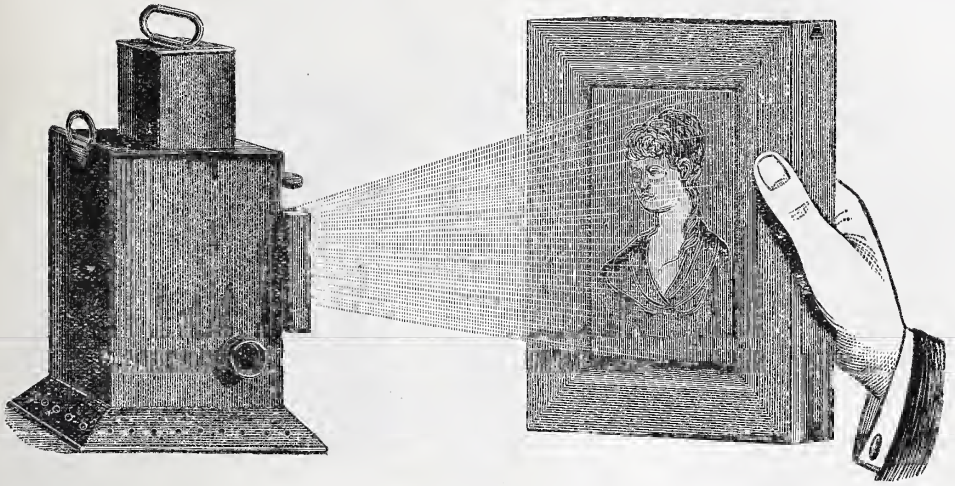
The love of beer, and such beer! is early implanted in the heart of the lower class yokel, the Blue Ribbon Army being to many of them an unknown institution. The two human objects are arranged in a somewhat picturesque attitude, the exposure is made, and they depart greatly pleased with the shekels they receive, no doubt spending the same at the nearest roadside tavern.

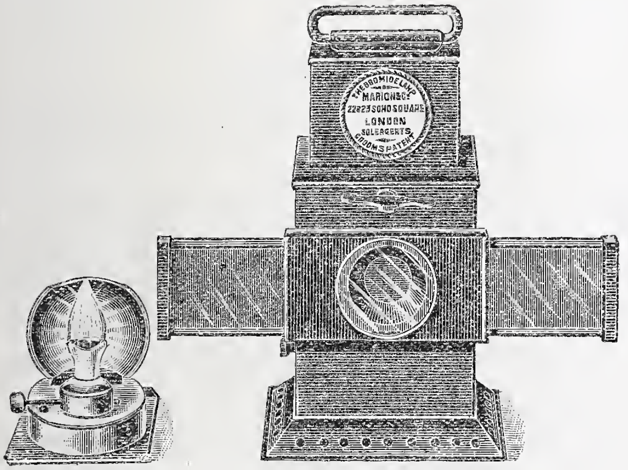
After securing several pretty views, it is considered that sufficient work for the day has been done; we retrace our steps, and after tea return to the station, being presently on our way back to our ancestral homes. As we think over our pleasant experience we are glad to have spent our time far away from the baleful influence of the "rowdy-dowdy" Bank Holiday excursionist. We only hope that our plates have been properly exposed, and that nothing will crop up during development or afterwards to spoil the fruits of our handiwork.

Apparatus.

THE "BROMIDE" LAMP.

MARION AND Co., of 22 and 23, Soho Square, W., have placed the above useful contrivance on the market. It has been specially designed for contact work with bromide paper and lantern slides. It is fitted with three coloured glasses, white, yellow, and ruby, which may be used separately or combined, and a shut-off, actuated by a lever in front, enables one to obtain absolute darkness. From the construction it is obvious that with the minimum of trouble, one may expose a lantern slide or some bromide paper, and then instantly convert the light into orange or ruby for developing.





The burner, which is of special construction and regulated from the outside, is adapted to burn petroleum or kerosine without any glass chimney, and after once adjusting the wick it does not require cutting for some weeks. The size of the lamp is 8½ in. high by 5 by 5 at the base. Price 7s. 6d. This will be found of great value to all workers of bromide paper and lantern slides, also for ordinary dark-room work.

VEVERS' NEGATIVE ENVELOPE.

Mr. C. C. Vevers, of 12, Market Street, Leeds, is placing some capital negative envelopes on the market with spaces for all details, such as date, lens, subject, etc. They may be obtained in two styles: Light cap, quarter-plate, 10d.; whole-plate, 1s. 4d. per 100, and a superior glazed casing, and quarter-plate, 1s. 2d.; half-plate, 1s. 8d.; whole-plate, 2s. 4d. per 100.

METOL—ANDRESEN.

We have received samples of this from Schwarz and Co., both in the crystal and in cartridges, but so late that we are compelled to withhold our notice of the same till next week.

METOL—HAUFF.

Fuerst Bros., of 17, Philpot Lane, E.C., have sent us samples of the above new developer. Testing this according to the formulæ given below, and which are sent out with the salt, we have obtained very satisfactory results. The solutions keep well, and there is no tendency to stain, and detail and density are easily attainable. At the same time gradation is excellent, and there seems to be no liability to blocking of the high lights, a fault which is liable to occur with pyro in instantaneous exposures. It is a very valuable addition to our developers, and will become a great favourite.

The following are the manufacturers' formulæ:—

I. METOL POTASH.

SOLUTION A.

Water	8 oz.
Metol	35 gr.
Sulphite of soda crystal...	¾ oz.

SOLUTION B.

Water	8 oz.
Carbonate of potash	¾ „

The Metol is to be dissolved in water before the sulphite is added.

STUDIO PORTRAITS.

	Ordinary.	Soft.	Hard.
Solution A ...	3 oz. ...	3 oz. ...	1½ oz.
Solution B ...	1 „ ...	½ „ ...	1½ „
Water ...	— ...	— ...	1 „

For landscapes the mixtures are to be diluted up to 6 or even 8 oz.

II. METOL-SODA.

SOLUTION A_1.

Water	1 pint.
Metol	130 gr.
Sulphite of soda cryst.	3 oz.

SOLUTION B_1.

Water	1 pint.
Soda cryst.	2½ oz.

The Metol is to be dissolved in water before the sulphite is added.

STUDIO PORTRAITS.

	Ordinary.	Soft.	Hard.
Solution A_1 ...	2 oz. ...	2 oz. ...	1 oz.
Solution B_1 ...	2 „ ...	1 „ ...	3 „
Water ...	— „ ...	1 „ ...	— „

For landscapes the mixtures are to be diluted up to 7 or 10 oz.

III. CONCENTRATED STOCK SOLUTION.

Water	1 pint.
Metol	130 gr.
Sulphite of soda cryst.	2 oz.
Soda cryst.	2½ „

The Metol is to be dissolved in water before the addition of sulphit

For studio portraits dilute with an equal bulk of water.

For landscapes mix one part of the concentrated solution with two or three parts of water

The following is an abstract from a report by Mr. Andrew Pringle, sent us by Fuerst Bros.:—

Metol-Hauff is as powerful a reducing agent as I know. It has this advantage over pyrogallol, that if a plate is under-exposed Metol will bring out all developable details without clogging the high lights; pyrogallol would probably bring out as much detail, but the negative in other respects would be inferior to that developed with Metol.

Metol has this advantage over eikonogen, paramidophenol, and the like, that density is much more easily obtained with Metol in case of either under or over exposure. The density obtained with Metol is not of the "black and white" character so frequently seen with such developers as quinol-caustic, but is a more graduated density over the plate. Considerable contrasts of density—as for photo-micrographic or line-copying work—can be got with suitable treatment, consisting in general terms of keeping the exposure moderate and using a large proportion of alkali. Next to ferrous oxalate Metol-Hauff seems to me to have the least tendency to produce fog, *i.e.*, to cause reduction where a minimum of light-action has taken place.

Metol-Hauff works well *almost* indiscriminately with all the alkalies I have used with it. The caustic alkalies, soda and potash, so unstable in keeping quality and so hurtful to the skin, are not required. I find it works best with potass-carbonate, but very well with soda carbonate, and with liquor ammoniæ. Soluble bromide in the developer affects the density more than the detail, and causes the image to appear more slowly than usual; but even with large proportions of free bromide—up to 3 grains per oz. of developer—the image, when time is allowed, ultimately acquires both detail and density. The density depends mainly, *ceteris paribus*, on the proportion of alkali used. I have successfully developed negatives after normal exposure with a developer containing 1 per cent. of Metol-Hauff, no free bromide, and 9 minims to the ounce of liquor ammoniæ sp. gr. ·880. This surpasses all my previous experience of tolerance of ammonia, and the plates used for this experiment were extremely sensitive (Cadett, H. and D., 110). But I do not find ammonia a better or more energetic alkali for Metol than potass. carbonate.

With moderate time the Metol-Hauff and sulphite of soda, commercial, alone will develop plates that have got even short exposure; the negatives will be full of detail but probably thin; the density can be at once increased and controlled by gradual addition of an alkaline carbonate. This is a most valuable method for developing plates the exposure of which is doubtful as to correctness. In this way I have made the best of undoubtedly under-exposed plates.

For bromide paper the best plan is to use the developer fairly strong; if this be done the tones will be very good. If the developer as a whole is much diluted, or if the alkali is much reduced in proportion, or if too much bromide be added, the tones will be more grey and less black than is usually desired. But when soft greyish prints are required, as for after-toning or intensification, the plan is to dilute the developer.

For lantern slides I find Metol-Hauff excellent, and in some respects almost unique. When the normal developer is slightly diluted, the tones are of a warm black, very pleasing on the screen. I am unable with Metol to obtain really red, or even sepia tones. I have never known Metol to produce the greenish tones so offensive, but so common, after errors of exposure in the use of some other developers.

To sum up, after very numerous, careful, and methodical experiments I find in Metol-Hauff as a developer, the following qualities:

(1) Great energy.

(2) Great keeping power, even in alkaline solution.

(3) Control over results: in this I consider it almost or quite equal to pyrogallol, and superior to all other developing agents in use.

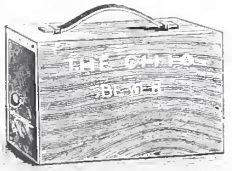
(4) Freedom from staining.

(5) Power of giving density.

(6) Adaptability to bromide paper and lantern slides.

Since the discovery of alkaline pyrogallol as a developer, I have found nothing so good for all-round work as Metol-Hauff.

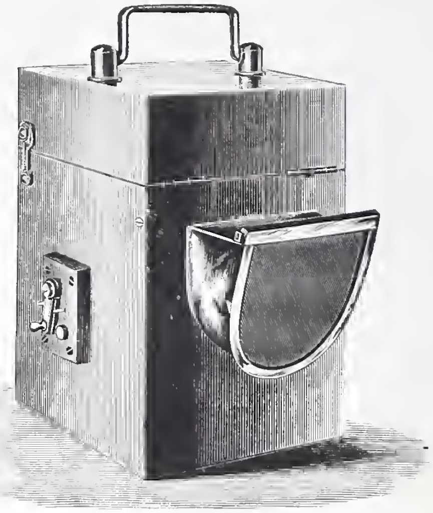
THE CHIO HAND-CAMERA.



Mr. W. Beyer, of 5, Kelly Street, Kentish Town, N.W., has shown us the above, which is a neat polished mahogany box, fitted with achromatic meniscus lens, working at *f*/10, and an everset shutter without springs, and cover to lens aperture. The plates are placed in sheaths in the receptacle at the back of the camera, and changing is effected by pushing a small stud on the top of the camera, which disengages a sheath, which then falls into a well in the lower part of the camera. The finder is a concave lens, fitted with mirror, a form which allows one to see the image very plainly indeed. The camera with R. R. lens and Thornton-Pickard shutter for 30s.

HURST'S DARK-ROOM LAMP.

A. HURST AND Co., of 6, Fowke's Buildings, Great Tower Street, E.C., have sent us one of the above, which we have used during this last week. It is a neat, polished, walnut-wood box with a small incandescent lamp in a nickel shade, whitened inside, which reflects the light very strongly down on to the dish. Two glass screens, one orange, the other ruby, are inserted in grooves in front of the nickel shade, so that one is able to obtain either white, orange, ruby, or the two latter combined, at will. A small switch at the side allows one to switch the light on and off as required, and the light lasts for thirty hours without any necessity for recharging, which can be done at a nominal cost. Price 40s.



* * *

Exhibitions.

FORFARSHIRE PHOTOGRAPHIC SOCIETY.

The following are the awards of the judges, Messrs. E. Marshall Wane, Adam Diston, and W. D. Welford:

PRIZE LIST.

Class I.—Confined to Forfarshire Amateurs.—Silver medal—Peter Feathers, Dundee. Bronze medal—G. Mackie, Brechin.

Class II—Open Amateur Landscape.—Silver medal—J. M. Brownrigg, Guildford. Bronze medal—A. H. Bishop, Helensburgh.

Class III.—Amateur Genre and Portraits.—Silver medal—Withheld. Bronze medal—John A. Dumont, New York.

Class IV.—Professional Portraiture.—Silver medal—W. J. Byrne, Richmond. Bronze medal—J. H. Hogg, Kendal.

Class V.—Professional Genre.—Silver medal—Robert Terras, Markinch. Bronze medal—W. J. Anckorn, Arbroath.

Class VI.—Open Class Enlargements.—Silver medal—Alexander Bros., Glasgow. Bronze medal—W. J. Anckhorn, Arbroath.

Class VII.—Professional Landscape.—Silver medal, Robert Terras, Markinch. Bronze medal—J. H. Hogg, Kendal.

Class VIII.—Ladies Only.—Silver medal—Mrs. Bennetto, Italy, Bronze medal—Mrs. Amy Warneuke. Hon. mention—Margaret Watson.

Class IX.—Lantern Slides.—Silver medal—T. H. Brownrigg, Guildford. Bronze medal—Edgar G. Lee, Newcastle. Hon. mention—W. Taverner, London, and W. C. Beetham, Cheltenham.

Class X.—Champion Class.—Gold medal—W. M. Warneuke, Glasgow. Silver medal—J. A. Dumont, New York. Bronze medal—Robert Terras, Markinch.

Special Awards.—Gold medal—Withheld. Silver medal—W. J. Byrne, London, for frame. Bronze medal—Miss Hall, Brechin.

Apparatus Section.—Bronze medal—A. H. Baird, for Todd-Forret flash lamp.

* * *

Sheffield Phot. Society.—On the 2nd inst., Mr. Bradley Nowill in the chair, after the election of two new members, the arrangements were completed for the excursion to York and Knaresboro. The next business was the print exchange, many members taking part, after which Mr. T. G. Hibbert introduced four photographs taken in America by the Daguerreotype process which are still in a good state of preservation.

FOR HAND-CAMERA WORK.

Every Box Marked with the H. & D. Speed No.

The PRACTICAL PHOTOGRAPHER, May, 1893. *says:*

"The CADETT

SNAP-SHOT PLATE

we have tried by Comparative Camera Test alongside other 'MOST RAPID' Plates, with the RESULTS in the favour of

CADETT."

SNAP-SHOT.	PRICES.			
	3¼ x 3¼	¼	5 x 4	½
On Specially Thin Glass, Minimum 100° H. & D.	**2/-**	**2/3**	**3/6**	**4/10**
THE LIGHTNING	**1/6**	**1/6**	**2/6**	**3/8**

ALSO FOR HAND-CAMERA WORK.

CADETT & NEALL, Ashtead, SURREY

London Depot: W. WATSON & SONS, 313, High Holborn, W.C.

AND ALL DEALERS.

ZOKA

12/6

"Cheap, and of really good value."—*Amateur Photographer.*
"Accurate and effective in its working."—*Photography.*
"We have not seen its equal at anything approaching the price."—*Hand Camera and Lantern Review.*
"Marvellous value for the money, and a really practical hand camera."—*The Photographic Review of Reviews.*
"A cleverly designed camera. . . . . A marvel of ingenuity."—*Photographic Work.*
"The construction is most ingenious."—*Optician.*

HAND OR DETECTIVE

THE ZOKA CAMERA

PRICE 12/6 COMPLETE

FOR SNAP-SHOT PHOTOGRAPHY.

The "**ZOKA**" carries 12 Plates or Films 4¼ by 3¼, in Metal Sheaths, for Vertical or Horizontal Pictures. Size, 9½ by 6½ by 5 in. Weighing only 2½ lb.

The "**ZOKA**" hand camera is a newly invented and ingeniously designed magazine camera, fitted with good achromatic lens, and shutter for time or instantaneous exposures. Plates changed by simply pulling a knob.

The "**ZOKA**" may be used as a hand camera or on any ordinary tripod.

The "**ZOKA**" is guaranteed to work as efficiently as any hand camera on the market.

The "**ZOKA**" is well made, each part being carefully constructed of well-seasoned wood, covered in cloth, and provided with leather handle.

A Specimen Snap-Shot Photograph taken with the "**ZOKA**" by an amateur, sent to any address on receipt of two penny stamps.

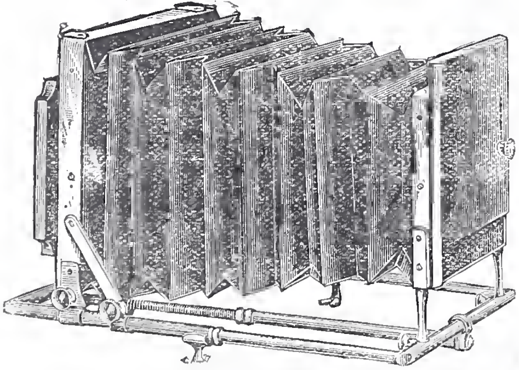
The "**SPECIAL ZOKA**" price 21s., includes two sunk view finders, indicator, and is covered in leather. Patentees and Sole Proprietors—

THE ARTISTIC PHOTOGRAPHIC CO.,
12/6 178, Charing Cross Road (Oxford Street end), London, W.C. ZOKA
Or of all Photographic Dealers throughout the Country. Wholesale of Jonathan Fallowfield.
N.B.—Every Camera is stamped ZOKA on the Handle.

THE "ZODIAC" (GRIFFITHS' PATENT).

The greatest advance in Photographic Apparatus for 1893.

Embodying all the Modern Movements.



FRONT VIEW.
Showing rising front and extending base.

PRICES.

Complete with **Three** Double Dark Slides, Focussing Screen, and Ash Stand.

¼-plate ...	£3 13 6
5 X 4-plate	4 4 0
Half-plate	5 5 0
1/1-plate ...	6 18 6
10 X 8-plate	8 8 0
12 X 10-plate	10 0 0

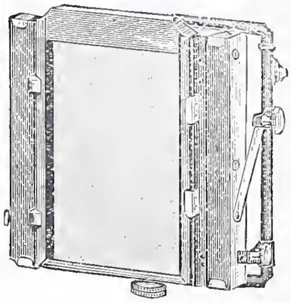
HOME AND EXPORT.

This Camera signalises our entry into the Manufacture of General Photographic Apparatus.

Being totally unaffected by Trying Climates, it appeals with particular force to Merchants and Shippers, while the special nature of its construction makes it no less suitable and desirable to Photographers at home.

Though metal in many parts, the form is chiefly tubular, and the Camera is actually lighter than the usual make.

The Smallest Camera on the Market.



THE NEW STEREO CAMERA.
IN ZODIAC MAKE.

Best form ...	£4 4 0
Plain „ ...	3 13 6

R R. Lenses, £2 2s. extra.

CAMERA WHEN CLOSED.

COMPLETE SETS.

In order to meet the demand for a really good Camera at a moderate price, we offer a modification of this Camera complete with Lens, **Three** Double Slides, Focussing Screen, Stand, etc., at the following prices:—

¼-plate ...	£2 12 6
5 X 4-plate	3 3 0
Half-plate	4 4 0
1/1-plate ...	5 15 6
10 X 8-plate	7 7 0
12 X 10-plate	9 0 0

The only differences are the omission of the extending base, cloth bellows instead of leather, and a plainer finish throughout, the quality and efficiency in other respects being quite equal to the best.

ILLUSTRATED CATALOGUE POST FREE OF THE SOLE MANUFACTURERS,

WALTER GRIFFITHS & CO., Ltd., Highgate Square, BIRMINGHAM.

London Agency: BLACKFRIARS CO., 1, Surrey Row, Blackfriars Road,

Societies' Notes.

We are requested to state that Mr. J. Fred. Russell is the new Hon. Secretary of the Hexham Society, and his address is Hextol Terrace, Hexham.

* * *

Members of the Exeter Hall Camera Club, Plymouth, had their first "field-day" on the 3rd inst. Nearly the whole of the members, including a few ladies, joined the excursion, and some good work was done in the course of the afternoon under the direction of Mr. Charles Harris, President of the club. Shots were taken at Longbridge, Plym Bridge, and other picturesque spots, and groups of members were photographed. The members who took part in the excursion will meet at the Exeter Hall on Friday evening next, for a practical lesson in plate development.

* * *

The Eastbourne Photographic Society have got up an extremely neat invitation circular for their photographic trips, printed in green and red on antique paper; it is very taking in appearance.

* * *

The annual meeting of the Hackney Photographic Society was held on the 2nd inst. A very successful season had to be recorded, the membership (although several removals had taken place) keeping up to 115. The Treasurer reported a fair balance in hand, and stated the weekly meetings had done much to improve attendances. The election of officers resulted:—President, F. Houghton; Hon. Sec., W. F. Fenton-Jones, 12, King Edward Road, N.E.; Hon. Assist. Sec., A. Dean; Hon. Treasurer, J. O. Grant; Council, W. L. Barker, G. J. Avent, F. W. Gosling, G. Hankins, R. Beckett, W. A. Hensler, Dr. Roland Smith, E. Puttock. The society meets weekly, on Tuesdays, at 206, Mare Street, Hackney. At the close of the business the Prize Slides of the Amateur Photographer were shown, augmented by slides of Messrs. T. H. Blake and S. J. Beckett.

Societies' Meetings.

Aston.—On 4th inst. Mr. A. C. Townsend treated his friends to an hour's "practical development." In opening his address he said that about five years ago an article in a paper called the *Camera* induced him to try the then comparatively new chemical "hydroquinone," and since then he had used no other. Cleanliness, ease in manipulation, freedom from stain, beauty of image were only a *few* of the recommendations in its favour. He said he perhaps had crochets; certainly development by hydroquinone was a very strong one, and the more he used it the better he liked it. The first half oz. was purchased for 2s. (now it can be obtained for 1s. 3d. the ounce) and the results more than repaid him for the extra expense. "I felt so safe with the results, that when the question was being hotly discussed in some of the photographic papers," said the lecturer, "I threw out a challenge to back it in a photographic competition among photographers—professionals excluded." Mr. Townsend here read a few remarks from the work of a prominent writer, who, writing two years ago, said that before long the developer in question would be returned to the land from whence it originally sprang; but he appealed to his audience to verify the error of that surmise and to remember the universal use of his pet solution. On the question of exposure he was a firm believer in what some would call *over* exposure, but what he would say was a *correct* one. He would stand or fall, he said, by his result that evening, and he proceeded to make a transparency from a fine crisp landscape negative, which was passed round and each member asked to say what exposure should be approximately given, from the available light, at a distance of two feet. The longest named was 40 sec., and Mr. Townsend said he would expose for three times as long, viz., 120 sec. This he did, but the result, though good, was not as he expected it would be. The Secretary (Fred W. Pilditch) here handed in two plates, which were developed by the lecturer with almost equal results, although, as afterwards stated, one was a short exposure and the other abnormally long. The result certainly bore out the theory as propounded by the speaker, and after some discussion the meeting closed.

Bath.—A meeting was held on the 26th ult., Mr. W. Pumphrey presiding. Some improvements in lens fittings, sent by Messrs. Taylor, Taylor, and Hobson, of Leicester, were explained by the Secretary, who also exhibited on behalf of Messrs. Swift and Son, London, some special hand-camera lenses made of the new optical glass and possessing a remarkable degree of brilliancy and defining power. Colonel Sealy and Mr. Stair A. Stewart, M.I.C.E., were elected members of the Society. The remainder of the evening was devoted to an exhibition of lantern transparencies, contributed to the Devon and Cornwall Camera Club. The views represent scenes about Plymouth and the adjacent district, where excursions will be made by the Photographic Convention—Plymouth meeting—July, this year. The Chairman drew attention to the prospectus issued by the Photographic Survey Committee, and he further stated that there would be a public meeting under the auspices of the society shortly, to demonstrate the uses of multiple-coated films.

Birmingham.—Ordinary meeting on 2nd inst., Mr. W. Jones in the chair; about forty-five members present. Mr. Fry, representing Messrs. Thomas and Co., gave a lecture on the uses and advantages of the Sandell plate. Mr. Fry described the advantages claimed for multiple films; they are briefly: (1) Freedom from halation, even with the most trying subjects. (2) Possibility of giving enormously more than a normal exposure, which, with careful tentative development, would give all detail and density possibly required, and would dispose of the correct exposure question. (3) Increased detail and transparency in the shadows of instantaneously exposed plates. This was well exemplified by an extremely fine series of pictures produced by Mr. Sandell, the inventor of the plate. As to manipulation, briefly one may say, give a long exposure and develop tentatively, hydroquinone and eikonogen used together being one of the most suitable developers. The Chairman said he had used and liked the plates very much; the one thing he did not like was the price. Mr. Simkins said he thought all that had been done by these plates could be done with any ordinary good plate properly backed. Mr. Simkins method of working is to largely over-expose; development being tentative and stopped by citrate of ammonium when detail is out, and then redeveloped to full density as described in a recent number of the Amateur Photographer. Mr. Middleton said he thought the Sandell plates did not always prevent halation, and challenged Mr. Fry to expose a plate on the interior of St. Martin's Church, Birmingham, a very difficult subject. Mr. Jaques said he considered the results shown very beautiful, so soft, and such transparency in the shadows; he should certainly try the plates.

Brixton and Clapham.—A meeting was held on the 2nd inst. In the unavoidable absence of Mr. Horsley Hinton, who had been expected to give a lecture on this occasion, the members occupied the time by discussing photographic subjects. One new member was elected, and three other gentlemen proposed for membership. The next meeting of the club will be held on May 16th, on which occasion Mr. W. Thomas will read a paper on "A Photographic Picture and its Production." As the subject is one which every photographer should thoroughly understand, the attendance of every member, and also of any gentleman interested in photography, is specially requested. Mr. Thomas's paper will be fully illustrated.

Croydon (Micro.).—On 5th inst. Mr. J. R. Gotz exhibited several photographic novelties and explained their working. The chief one was a pair of lenses with a shutter, forming part of a new camera he was about to introduce, which could be used at will as a stereoscopic camera, or as a hand-camera with full-sized view-finder, or as a double quarter-plate. The shutter possessed a considerable range of speed, and worked simultaneously on each lens or independently as required. A changing box for large films was also shown, the films being carried in thin steel sheaths and exposed by means of a single dark slide. Mr. Gotz then proceeded to demonstrate the new Obernetter positive films, the various methods of toning the Obernetter gelatino and celloido chloride papers, and their development when only partly printed. A series of prints which he handed round showed the variety of tones that could be obtained.

Eastbourne.—On 3rd inst. Mr. Bynoe, from Messrs. R. and J. Beck, demonstrated on the Frena, before a good audience, who thoroughly appreciated all the various points of the camera. The remarkable certainty of working, the powers of the lens, and the simple way of changing the films were duly appreciated. Several members expressed their determination of trying a Frena, the undoubted wish of the members being that Messrs. R. and J. Beck should introduce a quarter-plate size. Medals awarded to Messrs. Plomer and E. Kelsey were duly received from the *Hand Camera and Lantern Review*, and presented to the fortunate members by the President.

Hexham.—A special general meeting was held on the 2nd inst., Mr. Jasper Gibson, St. Wilfrid's (vice-president), in the chair. There was a very good attendance of members, and Mr. Edward Spencer, of Hazlehurst, was elected a member of the Society, and the Rev. Arthur Cross, M.A., was elected a member of the council. It was resolved to hold the next outdoor meeting at Wark on May 18th, and that the remaining outdoor meetings should be held at Staward, Bardon Mill, Blanchland, Naworth, Stocksfield, and Allendale. Mr. J. Fred Russell was unanimously appointed honorary secretary in the place of Mr. John Gibson, jun., resigned, and on the motion of the chairman, seconded by Mr. Spencer, and supported by Mr. S. A. Bowman, a hearty vote of thanks was accorded to Mr. Gibson for the able and energetic way he had discharged the duties of honorary secretary since the organisation of the society.

Leeds.—Meeting was held on 4th inst., Mr. J. H. Walker, President, in the chair. Dr. Jacob gave a very interesting and instructive lecture and practical demonstation on "Tone and Colour in Lantern-slides."

Lewes.—A meeting was held on 2nd inst., when Mr. G. J. Wightman gave a demonstration of the cold-bath platinotype process, developing a number of prints and showing how development could be controlled with glycerine and over-printing compensated for. The results were very satisfactory and much appreciated. A number of sample packets of plates sent by the Imperial Dry Plate Company were handed round to the members for trial.

North London.—On 2nd inst., Mr. E. W. Parfitt in the chair, a circular letter from the P.S.G.B. was read asking the society to furnish a set of lantern slides for circulation amongst the affiliated societies. It was resolved that a collection of slides should be contributed by the members to form a set for circulation. A demonstration on "Carbon Printing" was then given by representatives of the Autotype Company. Mr. Braham, one of the representatives, said that the process when first brought out was difficult and uncertain, but with the new and improved methods it was now one of the easiest to work. He gave a short history of the process, referring to the introductions and improvements of Messrs. Swan, Johnson, Sawyer, and Lambert. As to the advantages, carbon prints were undoubtedly permanent, and copies of drawings could be reproduced in fac-simile, not only as regards colour, but on the same kind of material that the artist had used. The prints can be finished with the highest gloss or the roughest surface, and as the tissue was brought into perfect contact with an uneven surface, the want of sharpness, which was apparent in other processes finished on a rough surface, was overcome. The transparencies produced by the carbon process are splendid. After commenting on the manner of printing from the negative and the use of the actinometer, Mr. Braham developed several prints, and showed the single and double transfer processes and the production of transparencies. The demonstration proved the ease with which the process could be worked, and the simplicity of the operations.

Putney.—Ordinary meeting, Dr. Sheppard in the chair. Mr. Charles Gamble read a paper on "Lighting of Objects to be Photographed," in which he clearly pointed out the importance of studying the effects produced under varying conditions of light. About 100 slides, prepared by himself, to illustrate the lecture, were passed through the lantern. Mr. Gamble explained the qualities or defects of each, and the members were thus able to see what effects they should endeavour to secure, and what faults they should avoid, A hearty vote of thanks to Mr. Gamble for his interesting paper and for the thoroughly practical way in which he had placed the subject before the meeting, concluded the proceedings. This was the last ordinary meeting of the winter session. The annual general meeting for the election of Council and other business was held on the 4th inst., Dr. Sheppard in the chair. All the members of the retiring Council were re-elected, the accounts, which showed a balance in hand, were passed, and some slight alterations were made to the rules. As in previous years, a series of outings will be held on Saturdays during the summer months, a feature being that on each occasion one or more members will act as leaders, having previously gone over the ground and made the necessary arrangements. In addition to the opportunity of photographing picturesque scenery, it is intended to give instruction in field work to the novices, and to arrange a series of experiments with, and comparative tests of apparatus and materials The first outing will take place on Saturday the 13th inst., when the Joint Hon. Secretaries, Mr. Gorin and Mr. Zachariasen, will take the members along parts of the Basingstoke Canal and the Wey navigation, starting from Byfleet.

Tunbridge Wells.—On the 4th inst., through the kindness of Messrs. Perken, Son, and Rayment, members had an opportunity of inspecting a selection of the prints sent in to the "Optimus" Competition, in which it will be remembered prizes to the value of £105 were offered. More than usual interest was evinced in them as one of the members, Mr. J. W. Morgan, had gained the prize for hand-camera work.

SOCIETIES' FIXTURES.

May 11—DUBLIN (Y.M.C.A.).—Technical Meeting and Exhibit of Prize Slides.
„ 12—HOLBORN (Camera Club).—Social Evening.
„ 12—CROYDON.—Hayes' Excursion Work.
„ 13—HUDDERSFIELD.—Ramble, Mollicar Woods.
„ 13—BRISTOL).—Excursion to St. Peter's Church and Hospital.
„ 13—HOLBORN.—Outing to Richmond.
„ 13—LEYTONSTONE (Camera Club).—Outing to St. Paul's Cathedral.
„ 13—ACCRINGTON AND DISTRICT.—Excursion to Hardcastle Crags.
„ 13—HACKNEY.—Excursion to Wanstead Park.
„ 13—ROCHESTER.—Excursion to Queensdown Warren.
„ 13—WEST LONDON.—Excursion to Richmond Park.
„ 15—RICHMOND.—"Films *versus* Glass."
„ 15—KENSINGTON AND BAYSWATER.—Social Entertainment.
„ 15—SOUTH LONDON.—"Isochromatic Photography," Mr. E. J. Wall.
„ 15—ASHTON-UNDER-LYNE.—An Exhibition in the rooms of the Society of over 100 photographs of "The Land of the Broads."
„ 16—BIRMINGHAM.—Social Evening.
„ 17—CROYDON.—"Enlarged Negatives," Charles Hussey, 8 p.m.
„ 17—PHOTOGRAPHIC CLUB.—"Testing the Speed of Plates."
„ 18—ASTON.—"Colouring Photographs," Mr. W. Neville.
„ 18—HARRINGAY.—Lantern Slides.
„ 19—CROYDON.—Horsham Excursion Work.
„ 19—HOLBORN.—Toning and Finishing Gelatino Chloride Prints.
„ 20—BRISTOL.—Excursion to Backwell and Church.
„ 20—ASHTON-UNDER-LYNE.—Outing to Belle Vue.
„ 20—LEYTONSTONE (Camera Club).—Excursion to Wanstead Park and Flats.
„ 20—BIRMINGHAM.—Half-day Excursion to Alcester.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume.*
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer Questions by post.

QUERIES.

6070. **Whitby Lodgings.**—Could any of your readers kindly give me the addresses of any houses in Whitby where I could get good accommodation in July?—CELLULOID.

6071. **Enlarging.**—Can anybody tell me where I can have one figure in a group on a half-plate negative enlarged to a whole-plate negative without great expense and without damaging the half-plate?—NEGATIVE.

6072. **Printing.**—Will some reader kindly inform me why, when printing on Solio paper, some negatives should give a different coloured print to others? I have several negatives that *always* give a purple print before toning, whilst others give a much redder print. Shall be glad of reason for this.—DYNAMO.

6073. **Ferrotypes.**—Will some reader who has worked the ready-sensitised ferrotype plates with success, inform me of their method? I want to work them the same as they do in the streets and on the beach. I have tried two dozen plates with the special developer, but can't get them to perfection. What lens is best, and their difference of speed from Ilford ordinary? Any hints would greatly oblige.—A. B. C.

6074. **Blackpool.**—I shall feel obliged if any of your readers can inform me whether Blackpool is a good centre for an amateur photographer to spend a fortnight. Are apartments reasonable and plentiful? Any particulars will be greatly appreciated.—H. C. S.

6075. **Lock Tickets.**—Can any reader tell me whether, and where, I can get a ticket for all locks on the Thames, season or otherwise?—BUTSEY.

6076. **Grain for Photogravure.**—I want to try the old aquatint method of graining a plate. A liquid "ground" was used, which, it is said, was composed of resin and camphor dissolved in chloroform. Can any reader give me an idea of the quantity of each in the solution, and the method of applying it to the copper plate? Also, is chloroform essential, or would alcohol answer equally well?—JUVENILE.

ANSWERS.

6050. **Electric Lamp.**—"Rolyat's" mistake is probably in using bichromate of potash at all. He can use either—

Chromic acid	3 oz.
Sulphuric acid	2 „
Water	1 pint

or—

Bichromate of potash	8 oz.
Sulphuric acid	12 „
Water	1 pint

I think the former is the better because it is cheaper. Either of these give about two volts which should light a small two-candle-power glow lamp.—DYNAMO.

6050. **Electric Lamp.**—Not having seen an answer to this, I will try and help "Rolyat," but it is so vague one can only guess what is meant. Presuming the lamp is a small incandescent one of two, four, or six volts, he will require a *battery* of one, two, or three bichromate *cells*, that is, one cell for every two volts, bearing in mind that if that proportion is much exceeded, the battery will be too strong for the lamp and destroy the filament. An ordinary bichromate battery will not light the lamp for more than half an hour; you require one of the constant forms.—VOLT.

6069. **Callander.**—The following from the "A. P. Annual," 1892, will no doubt be useful to "M. Y. S." "Callander is the starting place for the Trossachs, and is easily reached from Glasgow or Edinburgh. It is quite impossible to give any account of the principal objects to photograph when at every turn the beauties of the mountain, stream, and loch appeal to the lover of nature. Those who can spare the time will do well to make Callander their head-quarters, and take excursions from it." Mr. John Furnie has a dark-room.—D. H. W. PREEDY.

QUERIES UNANSWERED.

April 14.—Nos. 6027, 6029, 6030, 6032.
„ 21.—Nos. 6035, 6038, 6040, 6046. 6047.
„ 28.—Nos. 6052, 6053, 6055, 6057, 6059, 6061.
May 5.—Nos. 6063, 6064, 065, 6066, 6067, 6038.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

DOUBTFUL.—Dilute perchloride of iron will convert part of the image into silver chloride, which if not fixed out would of course be affected by light. You can get all the clearing effect you want by using—

Sulphate of iron	½ oz.
Alum	2 ,,
Sulphuric acid	¼ ,,
Water	20 ,,

without any disadvantages.

A. ROBERTS.—(1) The usual qualifications are merely some knowledge of the simple operations of developing, printing, etc. (2) As a rule there are no wages given, or at least merely nominal, about £10 per annum. It is usually considered that the experience and knowledge gained make up for the smallness of salary.

ALPHA.—The blueish-green colour is dichroic or green fog. It may be due to the plates having been kept in an impure atmosphere or to too long keeping. It may also be due to an impurity in the developer. The slightest trace of hypo will give it, or stale pyro, or, if you are using sulphite in the developer, an old sample of sulphite will cause it. Unless you find it troublesome in printing, there is no need to get rid of it, but otherwise the proper way to treat such plates is to immerse them in—

Ferric chloride	10 gr.
Potassium bromide	40 ,,
Distilled water	4 oz.

till bleached, wash well, then redevelop with ferrous oxalate. You will find that soda or potash developers will not give it quite so readily as ammonia.

CELT.—The bright circular patch in the centre of your print will be found as a denser patch on the negative, and it is what is called "a flare spot;" that is to say, it is an image of diaphragm aperture, or if a doublet, of one of the lenses reflected on to the plate. Examine your lens carefully to see that the whole of the tube is well blackened and not worn bright; look to the diaphragms in the same way. If it is a single landscape lens you are using, it is probably due to the stop being in the wrong position. Try shifting it either a little nearer to or farther from the lens, or simply unscrew the lens slightly in the mount. Flare is more likely to make its appearance when using a very small stop and when photographing a landscape with a very brilliant sky.

MEZZOTONE.—You evidently wish to use the old sel d'or toning bath, but you have not got hold of quite the right formula, which is as follows:—

Chloride of gold	1 gr.
Hyposulphite of soda	4 ,,
Hydrochloric acid	4 minims
Water	4 oz.

Dissolve the chloride of gold in 2 oz. of water, and the hypo in 2 oz. of water, add the gold solution to the hypo, gradually stirring all the time, and then add the acid. Place your prints in a solution of common salt about 1 in 20 as they come from the printing frame, leave them in this for five minutes, then wash and tone in the above bath. As soon as the desired tone is reached, place the print in water to which some carbonate of soda or ammonia, about ½ oz. liq. ammoniæ ·880 to the pint, then fix in hypo 1 in 10, and wash well. Prints toned in this manner are quite as permanent as by any other process; in fact, some people say more so. The chief points to be noted in this method of working are that the prints must be free from nitrate of silver, which is effected by the salt bath. Then the gold must always be added to the hypo, and not *vice versa*, and finally after toning, the prints must be put into an alkaline bath or else the acid will decompose the hypo and cause sulphuration of the print.

WM. MILLARD.—The rule is multiply the foci of the two combinations together and divide the product by the sum of the foci minus the distance; but as you only have one quantity, it must be solved practically by guess work, and having made a guess, prove it by the above, thus—

$$\frac{11 \times 12}{11 + 12 - 1} = \frac{132}{22} = 6 \text{ inches.}$$

Therefore, if you get a single meniscus of 12 in. focus and put that as the front combination and your 11 in. as the rear lens, and mount them 1 in. apart, you will have a doublet of 6 in. focus.

J. D. PEMBERTON.—The phrase simply means that supposing we want to use a negative for reproduction purposes, we may be at liberty to do so, but the negative is always the property of the competitor, and we never keep them or buy them. Entry forms are necessary, and if you send on a stamped addressed envelope, they will be sent to you.

MISS L. RIDLEY.—For the money there is not probably a better instrument in the market, but for serious work we cannot recommend it.

W. H. ELLIS.—Many thanks for letter. We are aware that the illustrations were not so good as they might have been, but this was almost unavoidable, on account of the blocks being received very late, and thus not allowing any time for making ready. We have the subject under consideration.

D. J. GADSBY.—You would find the "A. P. Annual" the most useful guide to where to go and what to photograph. The numbers containing the articles you want are out of print.

BACKING.—The finest matt varnish is made of—

Sandarac	10 parts
Ether (methylated)	100 ,,

Dissolve, filter, and add—

Toluol	35 to 40 ,,

Another good formula is—

Sandarac	9 parts
Mastic	1¼ ,,
Ether	110 ,,
Benzole	50 ,,

ZINCOP.—(1) Over-printed, and a little too much foreground. (2) Over-printed, and the short focus of the lens has given very violent and strained perspective. (3) Over-printed and over-toned. (4) We should have been inclined to put more sky in this with a good cloud negative, and it would have made a good evening effect; the lighting is very good. (5) The short-focus lens is again noticeable in this; considerably over-toned. (6) Good, but more decided clouds would improve it (7) This could be immensely improved by matt varnishing the back and making the first cow's head print out more; now it is lost in the hedge. (8) Very good. (9) Good. (10) Nothing in it, not even a good instantaneous shot, as part of the boat is cut off. (11) Negative too thin, and over-printed. (12) Wants some figures to give it life and interest. (13) Good of its kind, but why waste a plate on such a subject?

H. G. MORGAN.—We are glad to receive your print for competition, but we object to have to pay twopence for the letter, which was not stamped.

H. G. MORGAN.—We will book you for architectural competition prints. The print and entry form received all right.

A LEARNER.—Any society or reader is at liberty to borrow any competition prints or slides on payment of 1s. booking fee.

CURIOUS.—(1) If a good lens was fitted to the camera good pictures could be taken with. Lancaster's Instanto. lens would do for this or any other camera.

G. BERGEMANS.—We will write you by post.

J. G. PATTERSON.—It certainly is possible to obtain capital results from a steamer. Last year we did from London Bridge to Dover, and got some good shots with the shutter you name and rapid plates. It is advisable to use rather a long-focus lens, a 7 or 8 in. for quarter-plate, or else the objects are very small. The best place to stand, if you can get there, is the bridge of the steamer. If this is not allowed, as close to the side of the boat near the centre. It is possible to get good results from a small boat, but as a rule it is far more difficult. The shutter must work not only quicker, but there is always too much foreground.

INSTANTANEOUS.—We should personally be inclined to reduce the pyro solution to one-half and dilute the developer as directed in developing instantaneous work, and then increase it as soon as all detail is out. We do not think you can do better than stick to the plates and developer you are using. In very bright light, and especially if the objects are not very near and the plates extra rapid, you could use *f*/11 with safety.

BEETLE.—Both your negatives are much over-exposed, and you could have saved them by more careful development, by increasing the bromide considerably, and adding the ammonia, very gradually, drop by drop.

C. E. F. NASH.—Only sufficient ammonia should be added to the chrome alum solution to render it permanently cloudy. After shaking, it should then be filtered. From memory we think the quantity is about twenty drops to every ounce of chrome alum. The test with litmus is useless; phenol phthalein alone would be the correct reagent to test with. Stolze now recommends, as superior to the above, aluminium chloride, which he suggests adding to the toning bath as follows:—

Hypo	175 parts
Ammonium sulphocyanide	10 ,,
Lead nitrate	2 ,,
Aluminium chloride	10 ,,
Chloride of gold	½ to 1 part
Water	1000 parts

A slight precipitate will form, but the bath may be used at once if desired.

E. H. ORANGE.—We are very sorry, but to give you the information you ask for would absorb at least one entire page of this issue, and we cannot spare the space. You will find it all in the "A. P. Annual," and we are compelled to refer you to that.

FRITZ.—There is no reason why albumenised and gelatino-chloride prints should not be washed, toned, and fixed together, as both contain free nitrate of silver and free acid. You must, of course, allow for the fact that all toning baths are not quite suitable for both papers.

B.—The leatherette backs are usually attached to opalines by means of glue or gelatine, and it is not found that the prints are damaged.

TILSCO.—Berkeley sulpho-pyrogallol formula is—

Pyrogallol	1 oz.
Sodium sulphite	4 ,,
Citric acid	¼ ,,
Distilled water	to 10 ,,

Glycerine acts as a preservative and also as a mechanical restrainer.

A. H. GARNER.—(1) Over-toned, and wants an inch off left-hand side. (2) Over-toned, bath too strong. (3) Wants clouds. (4) Over-toned. (5) Horizon not straight, over-toned. (6) Over-toned, and wants clouds. (7) Over-toned. (8) Ditto. (9) Ditto. Most of your prints have lost a great deal by over-toning.

KENILWORTH.—(1) Good, though the road is a little too white. (2) Ditto, printed a little too deep. (3) Negative too hard, the whites of the flowers are too white. They are all up to standard, and you can use the entry form in the AMATEUR PHOTOGRAPHER.

L. MARSHALL.—All your prints are over-printed and over-toned. No. 4 is decidedly the most artistic, and printed on rough paper would make a very effective little bit. Your toning bath has been too strong, and you have therefore got brown shadows and blue high lights.

J. PERRETT.—We should say that the cause of your prints turning a dirty brown is due to acidity in the toning and fixing baths. See that both are distinctly alkaline, and wash your paper well before toning, and tone till, on looking through, all but the deepest shadows have lost traces of redness.

H. WIDDOWS.—Letter by post.

H. WOOLBRIDGE.—Percy Lund and Co., Memorial Hall, Farringdon Street, publish "The Practical Ferrotyper," by Snowden Ward, price 9d., which will just answer your requirements.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence,*** *Every additional three words,* ***one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one*** *word; compound words count as* ***two*** *words.)*

DEPOSITS.—*Money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge 1s.*

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, *1, Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR AMATEUR PHOTOGRAPHER, *1, Creed Lane, London E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.,*** *or a commission of* ***2½ per cent.,*** *upon the sale price of the apparatus.*

Cameras, etc.—Camera (Chadwick's), for hand and tripod, lens, shutter, leather case, 12 packs, etc., cost £6, take £3.—16, Duke Street, Trowbridge.

For sale, quarter-plate camera, with Dale's multiplex changing back (carries 13 plates), no lens, list price £4, will take 30s.—Doctor Gihbs, Chandos Road, Bristol.

Cameras, Lenses, etc. — Lancaster's half-plate portrait lens, £2, cost £5 10s; also Lancaster's 12 by 10 enlarging camera, 15s., cost 30s.—Nimmo, 5, Woodland Terrace, Langside, Glasgow.

Brown's patent camera, 5 by 4, three double backs, and rectilinear lens by Chambers, in canvas case, £4. May be seen at Hinton's, 38, Bedford Street, Strand, W.C.

Splendid mahogany studio camera, whole-plate, bellows, London make, slide with adjustable carrier for all sizes, Voightlander's whole-plate euryscope lens, lot £6 10s.; lens worth money.—Green, Photographer, Rotherham.

Dubroni's patent camera for manipulating wet or dry plates without a dark-room, also sliding body wet plate camera (quarter-plate), Lerebour compound quarter-plate portrait lens, lantern aphengescope, etc., for sale.—Wormald, Sutton, Surrey.

For sale, Stirn's detective camera, in excellent condition, with unopened packet of plates, 25s., or offers; also Rouch's Eureka changing box for 12 plates, 3¼ by

3½, quite new, not been used, cost 2 guineas, price 25s., or best offer; a 4in. focus Steinheil doublet lens in sliding mount, excellent for making slides by reduction, price 30s.; a good quarter-plate walnut portrait camera, with one single back and portrait lens, 15s.—George Lewis, Bollington, Macclesfield.

Dark Slides.—Nine Tylar's metal slides, half-plate, perfect condition, with adapter.—P., 51, Khartoum Road, Plaistow, E.

Enlarging Apparatus.—Hume's Cantilever enlarging apparatus, 5in. condenser, almost new, £2 15s., carriage paid.—McBain, 3, Orwell Terrace, Edinburgh.

Hand-cameras, etc.—For sale, R. J. Beck's detective camera for quarter-plate pictures, fitted with 7in. focus Autograph rapid rectilinear lens, with iris diaphragm, Newman's patent shutter, focussing adjustment, view finder, price, complete with six double plate holders, £8.—C. Yeomans, 17, Broomhall Road, Sheffield.

A bargain. Adams' hand-camerra, latest pattern, with Ross' lens, Newman shutter, detachable changing back, etc., very fine instrument, only been used twice, cost £15 15s., will take £10 10s. May be seen in London by arrangement.—Bnlbeck, Havant.

Optimus hand-camera, three double backs, 4 by 5 rapid rectilinear lens, £3, cost £6 6s.—Presland, London Road, St. Ives, Hunts.

Hand-camera, mahogany, by Wood, for 12 quarter-plates in sheaths (bag changing), adjustable focus for 5 to 6 in. lens, two finders, cost 105s. without lens, as new, for 50s.—Winter, St. James' Road, Kingston-on-Thames.

Ideal hand-camera (Adams'), with Wray's lens, cost £8 10s., new January, sell £6 10s.—Dunsford, 9, Broadway, Ludgate Hill.

No. 2 Kodak, perfect condition, good as new, deposit, price £6.—R., Holmwood, Walton Park, Clevedon.

Ideal hand-camera, made to focus, in waterproof case, cost £8 12s. 6d., take £6 10s., perfect condition. —No. 405, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Griffiths' hand-camera, dark slides, lens, shutter, and finder, good order, price 10s.—Lennerd, 29, Clarence Street, Preston.

Lantern Slides.—Given away, 24 coloured photographic slides, Rome, 10s.—Hawkins, Cedar Villa, Latchford.

Lenses, etc.—Carte-de-visite lens (Voightlander's), 15s.—111, Shakespeare Road, Herne Hill, S.E.

Grand 15 by 12 lens by Dallmeyer, splendid for groups, £5; approval anywhere on deposit.—111, Shakespeare Road, Herne Hill, S.E.

Fine whole-plate rapid rectilinear, covers *f*/8, perfect, bargain, 30s.—Lenz, 8, Kenilworth Road, Willesden Lane, London.

15 by 12 rapid R. lens, fitted with iris diaphragms, nearly new, perfect condition, cost £9 10s., offered at £5, a bargain; approval on deposit.—Norman Kershaw, 5, South Street, Keighley.

5 by 4 R.R. euryscope, *f*/5 657, 17s. 6d., or exchange Thornton-Pickard or Kershaw time shutter, 1½in. hood —E. Graves, 47, Lewisham Hill, S.E.

Taylor's whole and half-plate rapid view lenses, cost 50s. and 30s., for 30s. and 18s.; four-fold tripod in case, cost 25s., for 12s.; all as new, approval.—Stevenson, 91, High Street, Paisley.

Half-plate R.R. lens, working at *f*/8, 23s.—29, Mayes Road, Wood Green.

Whole-plate rapid rectilinear, Waterhouse stops, *f*/8, splendid definition, perfect, 30s.—Miss Summers, Hillesley, Glos.

Two half-plate rapid rectilinear lenses by Laverne, gives grand definition, covers plate well to edges, fitted with iris stops, contained in tube, works *f*/8, three days' approval. lowest, 30s., as new.—Mrs. Bell, 25, Nelson Road, Clyde Road, Tottenham.

For sale, Ross' wide-angle 10 by 8 lens, price £4, list £7 15s., a quick lens for landscape and architecture, etc.—H. Jackson, Fishguard.

Negatives. — First-class professional negatives showing requisite density, retouching, etc., six sent free for nine stamps; clearance.—Richford, Wells, Norfolk.

Shutter.—Reynolds and Branson's instantaneous whole-plate patent shutter, new, 12s., list price 21s.; two vols. AMATEUR PHOTOGRAPHER, 3s. each.—H. Jackson, Fishguard.

Sets.—7½ by 5 Watson's Premier camera, mounted in aluminium, with turntable and tripod stand, four double backs with carriers for half-plate, two extra fronts, four printing frames, shutter, six negative storers, two bags, Ross' 8in. P.S. lens with iris diaphragms, in aluminium mount, equal to new, price £16 10s.—H., 55, Valplaisant, Jersey.

Quarter-plate camera, 5 by 4 R.R. lens, one double back, changing box, carries 12 plates, shutter, tripod, case, 45s.—Struckett, 27, Milton Road, South Hornsey, N.

Complete half-plate set, consisting of Rayment's patent camera, with three double dark slides, also carriers to take quarter-plate, two lenses, rapid rectilinear and portable symmetrical by Perken, Son, and Rayment, Phantom pneumatic shutter, view finder, good tripod, focussing cloth, developing dish, measures, printing frames, small quantity plates, brushes, two dark lamps, plate washer, etc. Cash offers invited.—Apply, R., 36, Cookridge Street, Leeds.

Selling off cheap, two cameras, three lenses (Dallmeyer), folding stand, two backgrounds, burnisher, 12 printing frames, six dishes, chemicals, bottles, etc., cost £20. What offers for the lot? In good condition. Particulars, Hennis, Houghton, Fence Houses.

Lancaster's special brass-bound Instantograph quarter-plate camera, three brass-bound slides, lens, shutter, and tripod, equal new, cost 60s., sell 42s., or exchange for good hand-camera.—Alfred Tindall, Fraserburgh.

G. Hare's 10 by 8 new-form camera, and three double slides in leather case, Dallmeyer rapid rectilinear lens, Newman shutter, sliding and folding stand, in case, good as new, £15.—26, Calthorpe Street, W.C., London.

Lancaster's Lady's camera, suitable for lady or gentleman, quarter-plate reversing back for taking views or portraits, instantaneous shutter with all accessories for carrying photo through its various stages, £3. Seen after 5 o'clock.—39, High Street, Marylebone, London.

Camera, new, whole-plate, brass-bound, cross and rising fronts, swing and reversing backs, screw or hand focussing, folding baseboard, long focus leather bellows, etc., with folding tripod, two double slides, and knapsack, £7 10s., postal orders. For photo of camera write, R. Farmer, Surveyor of Taxes, Sheffield.

Half-plate long-focus camera, brass-bound, three double backs, Watson tripod, Taylor-Hobson R.R. lens, iris diaphragm, quite new, £7 10s., a bargain, or part exchange for 5 by 4 set.—A. J. S., 188, Mare Street, Hackney, N.E.

Sundries.—AMATEUR PHOTOGRAPHER, vols. 1 and 2, bound, also Nos. 65 to 315, slightly soiled, and Nos. 337 to 440, clean. Offers wanted.—Winter, St. James' Road, Kingston-on-Thames.

WANTED.

Dark Slides.—Wanted, two or three double slides for Underwood's half-plate Instanto camera.—Chapman, 226, Warde Street, Hulme, Manchester.

Wanted, Tylar's metal dark slides, quarter-plate, cheap.—Darby, Penn Road, Wolverhampton.

Enlarging Apparatus.—Wanted, a daylight enlarging camera for half-plates.—R. White, Miss Evans, Anne Street, Llanelly.

Hand-cameras, etc.—Wanted, quarter-plate hand or stand camera, a Fallowfield preferred, light stand and utensils; approval desired.—Jos. Dodwell, 58, Hartington Road, South Lambeth.

Wanted, Fallowfield's Facile, in good condition, R.R. lens.—Stainforth, Temple Chambers, 32, Fleet Street.

Hand-camera, quarter-plate, by a good maker. Send particulars and lowest cash price to R. Nicholson, Athenæum, Liverpool.

Wanted, Adams' Ideal to focus; approval.—C. L. Clark, Cedars, Addiscombe, Surrey.

Wanted, Chadwick's latest hand-camera, with swing back.—18, Kirkland Street, St. Helen's, Lancashire.

Lenses, etc.—Whole-plate rectilinear lens, Crouch, Wray, or Optimus.—Ely, Oxhill, Handsworth, Birmingham.

Pair 5 by 4 in. Optimus portable symmetricals for stereo work.—Stereo, 3, Walpole Street, Wolverhampton.

Lens, 10 by 8 R.R.—Box 14, Post Office, Barrow-in-Furness; and No. 404, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Wanted, whole-plate wide-angle lens by good maker, also one or two whole-plate double dark slides suitable for Optimus Rayment camera; approval.—Apply, D. Smith, Bridge Street, Penicuik, Midlothian.

Wanted, Ross' hand-camera lens, 5in. (iris), cash.—c/o Mr. White, Blackpool.

Sets.—Wanted, good half-plate set, R R. lens, and accessories.—F. F. R., 2, St. Augustine's Villas, Archway Road, N.

Shutter.—Wanted, blind shutter, Thornton Pickard or Kershaw preferred, fit 1½ or 1¾ hood, cheap.—Young, 118, Islington, Liverpool.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bargains in Cameras and Sets.—Whole-plate Optimus Rayment camera, double extension, leather bellows, rising, falling, and brass fronts, three double dark slides, Optimus rapid rectilinear lens, Waterhouse stops, three-fold stand and case, lot as new, £11 5s.; Lancaster's whole-plate brass-bound Instantograph, wide-angle movement, all latest improvements, leather bellows, etc., fitted Lancaster lens, iris stops, instantaneous shutter, two double brass-bound slides, carriers and folding stand, finest condition, £6 17s. 6d.; half-plate International by Lancaster, double extension, square leather bellows, rising and cross front, swing and reversing back, very fine landscape lens, rotating stops, three double slides and folding stand, £3 12s. 6d.; half-plate Spanish mahogany camera by Mallett, double extension, rising front, swing and reversing back, three double book form slides, fitted rapid rectilinear lens by Laverne, Waterhouse stops, two-fold stand and case, real bargain, £5 5s.; half-plate camera, by Houghton, Holborn, grand lot, double extension, rising and falling front, swing and reversing back, three double slides, grand rapid rectilinear lens, iris stops, works *f*/8, and three-fold stand, set as new, £6 10s.; quarter-plate special brass-bound Instantograph, double extension, rising front, swing and reversing back, Instantograph lens and shutter, one mahogany, and two Tylar's medal slides, and folding stand, 42s. 6d.; Underwood's quarter-plate Instanto, double extension, square leather bellows, rising and cross front, swing and reversing back, two double slides, R.R. lens, Waterhouse stops, and folding stand, 37s. 6d.; Lancaster's quarter-plate Instantograph, Lancaster lens and shutter, two double slides, folding stand and case, as new, 35s. All above sets guaranteed in every detail as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Dallmeyer rectilinear landscape patent lens, fitted Waterhouse stops, grand definition, covers well, 13½ in. focus, size 10 by 8, £4 12s. 6d.; 8 by 5 Grubb aplanatic doublet lens, fitted Waterhouse stops, works *f*/8, best condition, £3 15s.; Optimus 7 by 5 landscape lens, rotating stops, quite new, 27s. 6d.; half-plate rapid rectilinear lens by Vevers, Leeds, fitted Waterhouse stops, works *f*/8, 8½ in. focus, 18s. 6d.; 7 by 5 rapid rectilinear by Browning, fitted Waterhouse stops, grand definition, as new, 27s. 6d.; 7 by 5 rapid rectilinear lens, by Laverne, works *f*/8, movable hood, grand definition, covers well, as new, 27s. 6d.; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s.; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works *f*/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s.; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works *f*/8, movable hood, as new, 45s.; 5 by 4 Dallmeyer wide-angle landscape lens rotating (1A patent), rotating stops, grand definition, 50s.; Laverne ¼ wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B), Waterhouse stop, rack focussing, condition as new, £3 17s. 6d., cost £6 5s. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

Bargains in Hand Cameras.—Rouch Eureka hand-camera, fitted Rouch rapid rectilinear lens, Waterhouse stops, blind shutter, finder, bag changing, covered leather, finest condition, £4 10s.; 1893 Talmer hand-camera, fitted Taylor, Taylor, and Hobson R.R. lens, time and instantaneous shutter, two large finders, carries 12 quarter-plates or 24 films, bag changing, as new, £4 17s. 6d.; Adams' Otto hand-camera, fitted very fine landscape lens, time and instantaneous shutter, two finders, covered leather, 40s.; Beck's Frena hand-camera, fitted Beck's Autograph rapid rectilinear lens, carries forty films, finest condition, covered leather, loaded with twenty films, £4 5s.; Talmer hand-camera, as new, good lens, time and instantaneous shutter, carries twelve quarter-plates, bag changing, two large finders, lowest, 63s.; Adams' Ideal hand-cameras, fitted rapid rectilinear lens, time and instantaneous shutter, two finders, carries 12 quarter-plates, covered morocco, £5 7s. 6d.; Fallowfield's Facile hand-camera, fitted R.R. lens, time and instantaneous shutter, carries twelve quarter-plates, condition as new, £3 17s. 6d.; Radial hand-camera, by Marion, fitted "Soho" lens, carries twelve quarter-plates, shutter, two finders, focusser, etc., in leather case, £5 17s. 6d.; Ariel hand-camera, leather bellows, fitted Wray's 5 in. R.R. lens, rotating stops, Thornton-Pickard shutter, three double book-form slides, finder, complete in case, as new, £5 10s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

ENLARGING APPARATUS, quarter-plate, 5in. condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work. —Hume, 1, West College Street, Edinburgh.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

MOUNTS (stout), finest quality, real gold bevelled, own name printed in gold on front, 100 c.-de-v., 3s. 3d.; 100 cabinet, 6s. 6d., post free.—Green, Crown Printing Office, Rotherham.

The AMATEUR PHOTOGRAPHER

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Offices, 1, Creed Lane, Ludgate Hill, London, E.C.

No. 450. Vol XVII.] FRIDAY, MAY 19, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 till 5 o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from 10 till 1 o'clock.

Our Views.—Stereoscopic Slide Competition Awards—Mr. Chadwick's Report—The Royal Marriage—The Central Club—Polytechnic Lectures—Portraits at the Royal Academy—Photochromic Experiments—Heliochromy and Ives' Lecture—The Central Club Supporters—Philadelphia's Share in Photography—Mr. Drage and the L. and P. Leader—Orthochromatic Photography.

Flotsam and Jetsam (Anchorite).

Letters.—Depth of Focus (Farmer).

Articles.—Round the Royal Academy (Viator)—Dry Plate Making at Home (Bayley).

Holiday Resorts and Photographic Haunts.

The A B C of the Lantern.

The Central Photographic Club.

Our Town Traveller—Watson and Sons.

Exhibitions.—Birmingham.

Apparatus.—Primus Paper Case—Metol - Andresen—Glycin-Hauff—Beresford's Specialities.

Societies' Notes.

Societies' Meetings.—Belfast Y. M. C. A.—Darlington—Eastbourne—Hackney—Halifax—Kensington—Leytonstone—Lincoln—Liverpool—P. S. G. B.—Rotherham—South London.

EDITORIAL DEPARTMENT—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of **Three Words for One Penny**) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Print Competition, No. 49, Figure Study.—Latest day, June 19th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, June 30th, 1893.)

We have received from Mr. W. I. Chadwick, of Manchester, the awards and report of the slides sent into our Stereoscopic Slide Competition. As we previously announced, we shall reproduce some of the winning slides, but whether we shall be able to do so next week will depend to a great extent upon the process-block makers. Mr. Chadwick's report we shall hold over, but the following are his awards:—

Gold Medal	J. W. Huggins, Exeter.
Silver Medal	J. H. Robinson, Tynemouth.
Bronze Medal	H. G. Brierley, Huddersfield.
Bronze Medal	J. E. Ellam, Yarm.
Certificate	W. Taverner, London.
Certificate	J. H. Spencer, Chester.

◆

Mr. Chadwick says, "It will be seen that two bronze medals have been awarded, whereas only one was mentioned in the conditions. I have been obliged to adopt this course, being unable to decide which of Nos. 8 and 16 were the best, and I freely confess never to have had so much difficulty in awarding prizes in any previous competition I ever had the honour to be engaged upon. Technical or photographic excellence is only *one* thing in a competition, and, of course, it has its points; this has been so uniformly good, that artistic merit has had a vastly predominating influence."

◆

We need hardly add that, as is the rule with all our competitions, the names of the competitors were carefully withheld, each set being numbered and the register being in our possession. We are much indebted to Mr. Chadwick for the trouble he has taken, and our competitors will be still more so when they read his comments on their slides.

◆

Public interest is at the present time concentrated on the approaching marriage of Princess May and the Duke of York. Amongst other mementoes of the coming auspicious occasion, photographs of the Royal pair are being widely circulated and find willing purchasers. Messrs. Cassell and Company, in their "Cabinet Portrait Gallery," are issuing two very creditable portraits of the Duke of York and his bride-elect.

◆

The Central is progressing most favourably. The two indefatigable Secretaries, Messrs. W. Fenton-Jones and C. H. Oakden, are putting in a tremendous amount of work.

◆

We have received from the Polytechnic, Regent Street, the syllabus of the lectures to be delivered by Mr. Horsley Hinton on Tuesday evenings, commencing May 30th. There will be six lectures, treating of "Our Materials and our Motives," "Our Limitations," Our Methods," "Our Subjects," "Some Advanced Aspects of Pictorial Photography," and "After Treatment." The fee for this course is only 5s. Four practical outdoor lessons in the field will be given by Mr. Hinton, on June 9th, 16th, 23rd, and 30th, the fee for which is one guinea.

* * *

ON the same prospectus is announced a second course of lectures on photogravure, "the highest development of photographic printing," by Mr. Howard Farmer. These classes are held on Thursdays, commencing June 1st. The fee is two guineas, and the class is limited to twelve students.

* * *

ONE of our lay contemporaries commenting on the Royal Academy Exhibition, says that the number of portraits included are a constant source of complaint, and that they know how to do these things better in France, where very few portraits are sent to the old or new Salons; in fact, it is said that photography has largely superseded portrait painting in France.

* * *

MESSIEURS A. AND L. LUMIERE are still carrying on their experiments with regard to Lippmann's process of obtaining the colours of natural objects, and have at the last meeting of the Paris Photo Club exhibited such reproductions of a bouquet of flowers, a landscape, a cottage surrounded with shrubs, coloured placards, and a Japanese screen. These gentlemen have prepared plates sensitive to all colours, and use a mirror behind the plate, as Lippmann did, and give an exposure of half-an-hour.

* * *

THE obtaining of coloured prints from the results obtained by Messrs. Lumiere and Lippmann is of course as far off as ever, but the latter savant expressed the hope that by the technical improvements made, everybody would soon be in the position to make such things.

* * *

THE production of coloured prints or heliochromy is receiving considerable attention, and Mr. F. E. Ives read a paper on the 17th inst. before the Society of Arts on his process, a report of which we shall give in our next issue.

* * *

WE publish elsewhere a circular received from the Secretaries of the Central Photographic Club, which is being well supported, and amongst others who are strongly in favour of it are Messrs. Acres, Bedding, F. Bishop, Bolton, A. Cowan, Chadwick, Dring, J. J. Elliott, B. J. Edwards, Austin Edwards, Thos. Fall, Howard Farmer, Freshwater, Hodges, Hindley, Keene, Geo. Mason (Glasgow), Newman, Sandell, Teape, Van der Weyde, Welford, Hepworth, Sturmey, Bolas, etc., etc., and Mrs. Welford and Miss Weed-Barnes.

* * *

MR. J. F. SACHSE has sent us a pamphlet, a reprint of a lecture delivered by him before the Franklin Institute on "Philadelphia's Share in the Development of Photography." Whilst fully recognising the work Philadelphians have done, and that of Mr. Ives in particular, we object to the statement that Mr. Ives is the inventor "of a method for the projection of views in the colours of nature by strictly photographic means." Mr. Ives improves methods of work the principles of which existed years back.

* * *

MANY of our readers will have read with regret the letter by Mr. R. P. Drage in our last issue, announcing his resignation of the Secretaryship of the London and Provincial Photographic Association. Under his fostering care for the last three years this association has done not only good work, but increased in membership, and his place will be hard to fill. We need hardly add that a formal vote of thanks for the services Mr. Drage rendered the London and Provincial was carried nem. con.

* * *

ORTHOCHROMATIC PHOTOGRAPHY.

IN 1879 Ives, of Philadelphia, published an account of his experiments with chlorophyll, and in 1884 he also published an improved process with eosine and chlorophyll. Baron Ransonnet in Austria, and Ducos du Hauron and Cros utilised the idea of sensitising plates for particular colours for obtaining prints in colours. Carey Lea, Abney, Schumann, Mallmann, Scolik, and others all investigated the subject, and what was at first received with derision became an accepted fact.

In 1883, however, Tailfer and Clayton obtained an English patent for preparing gelatine emulsions with eosine, and, as of some interest, we include the original patent specification, which is numbered 101; A.D. 1883:—

"Waterhouse's experiments in the year 1876 have shown the influence of the introduction of colouring matters into the collodion film of photographs. He found that eosine (tetra-brominised phtaléine, a substance discovered by Bayer of Strasbourg) possessed in a high degree these photogenic properties. Upon these facts Messrs. Ducos du Hauron, and Cros have established their heliochromic process. The practical results of this process have, however, hitherto not been so successful as anticipated. Mr. Sarrault, without pretending to solve the difficult problem of direct photography in colours, has recently occupied himself simply with reproducing by means of eosine the relative values of colours, but in limiting his experiments to the collodion process, which process is, however, at present almost universally replaced by the gelatino-bromide process.

"The present invention relates to the application of eosine to the said gelatino-bromide process. The difficulty experienced in this application arises from the fact that eosine gives no result unless it is introduced with ammonia as a vehicle, and it is the combined use of ammonia with eosine that forms the essential feature of the present improved process.

"According to the present invention the gelatino-bromide process of photography is carried out by two different methods, according as it is desired to prepare the gelatino-bromide or to use plates already prepared. In the former case eosine, by preference previously dissolved in ammonia, is poured into the emulsion of gelatino-bromide of silver at the moment of its formation. The proportion of eosine employed is about one part by weight to one hundred parts of the compound. The eosinised emulsion is spread as usual over the glass plate, and after exposure to the light is treated in the usual manner for the development and fixing of the picture.

"When gelatino-bromide plates already prepared are available, it is sufficient to pour over the dry film the ammoniacal solution of eosine to which alcohol is added. The plate is then washed, without fear of the removal of the eosine, which becomes immediately associated with the gelatino-bromide.

"This improved eosinated gelatino-bromide process produces very satisfactory results. On the photographs produced thereby the relative values of the yellow, blue, and violet colours may be easily distinguished.

"Although in what has preceded only eosine has been mentioned, it is to be understood that other acid or saline colouring matters obtained with the various fluorescines of resorcine combined with metalloids, chlorine, bromine, iodine may be included under the same generic term. Also instead of ammonia alone being applicable as a vehicle for the eosine, other alkalies may be used for the purpose.

"Having thus described the nature of the said invention, and in what manner the same is to be performed, as communicated to me by my foreign correspondents, I claim:

"In photographic processes of the gelatino-bromine kind, the use of eosine applied with alkali as its solvent and vehicle either in the liquid emulsion or on the dry layer of a prepared plate."

From this it will be seen that the use of eosine and all eosine derivatives in conjunction with ammonia is covered by this patent, and that unless by permission of the holders of the English patent rights, Messrs. B. J. Edwards and Co., one may not experiment with these colouring matters. Should, however, any one wish to experiment, Messrs. Edwards will raise no objection.

In 1884, Eder proved that erythrosine was a better sensitiser than eosine. Whilst we shall include brief notes upon the chemical composition of the dyes, we may mention that eosine is tetrabromo-fluorescine, whilst erythrosine is tetraiodo-fluorescine, and the latter has a more blueish tinge than eosine, the salts used in both cases being salts of potash.

About this time Vogel introduced azalin, a mixture of chinoline, or quinoline red, and quinoline blue, or cyanin, which sensitised plates further into the red.

We have thus considered briefly the historical side of this question, and shall proceed in future articles to the practical notes, and summarise the researches of various experimenters on numerous dyes.

Flotsam and Jetsam.

It is, to say the least, an odd coincidence that last week a sentence should have been written in this column which found such a funny realisation on the stage of the Savoy Theatre on Saturday night. It was suggested that "a Kodak will soon be an indispensable part of a reporter's outfit," and in the comic opera of Messrs. Barrie and Conan Doyle, given for the first time on Saturday, and entitled *Jane Annie,* there is introduced a class of "Press students" reading for honours in the school of the "New Journalism," whose method of work seems to consist chiefly in wandering about with notebooks and Kodaks.

It would be rash, no doubt, to infer that the idea was transferred from these columns to the stage of the Savoy, although more unlikely things than that have happened. The proper inference to be drawn is that the brilliant writers of this clever and humorous piece are well up to date, and have realised the great possibilities of photography in the province of journalism as in most other provinces.

At the recent conversazione of the Royal Society, the brilliant throng of the representatives of science and society had unusually good opportunities for observing the indefatigable way in which photography works as the handmaid and the recording agent of science. There were prosaic but most useful photographs of—turnips! And by these Sir John Lawes knocked on the head the idea that turnips and all such root crops derive nitrogen very largely from the air through their extensive leaf surface.

More curious to the outward eye, and perhaps more interesting to the ordinary and non-agricultural mind, were Prof. Marshall Ward's photographs showing that sunlight and the electic light kill the spores of bacteria and fungi. Here, too, in contradistinction to the previous instance, was a popular theory confirmed.

Professor Norman Lockyer exhibited the photographic spectra of some of the brighter stars, and Mr. Isaac Roberts showed various sets of photographs of clusters of stars, and of nebulæ, which were full of interest, both from the photographic and from the astronomical point of view. In various other departments, too, the work of the camera, silent, undemonstrative, but absolutely faithful and reliable, was in evidence.

Mr. W. M. Conway, the enterprising explorer, read a most attractive paper before the Royal Geographical Society last week on his recent travels in the Kara Koram mountains. Various imperfect and detached accounts of Mr. Conway's work have appeared from time to time, and have proved most interesting, but on this occasion the paper was illustrated by numerous photographs and drawings, which put all other descriptions into the shade. There is no pen equal in graphic force to the photograph.

The third exhibition of the Society of Portrait Painters is now opened at the Grafton Galleries, and photographers who take special interest in this department of work should certainly not lose the opportunity of seeing what hints they can glean from the work of such men as the President of the Academy, Mr. Watts, Mr. Fildes, and Sir John Millais.

Besides these well-known names and a number of other British artists, like Mr. Collier, there are some fine examples of foreign art in portraiture, works of Lefebvre and of Gervex, and of Bonnat. These are all worthy of study, and full of suggestiveness to those who have eyes and can see with them. Anchorite.

Letters to the Editor.

DEPTH OF FOCUS.

Sir,—Though this is a subject of interest to all, and especially to users of hand and detective cameras, yet, judging from my own experience, it may not be a matter very clearly understood by some of your readers, and they may be glad to learn something about it, if this letter be not too long for insertion.

Let me put first the surprising part, and put it as a problem. If in a camera with a lens of 4 in. principal focus, the ground-glass be in proper position or focus for an object 144 in. away, and to properly focus an object 96 in. away we must move the ground-glass ·06 in.: suppose that a camera with 8 in. lens is also in focus for the object 144 in. away; how much must we move the ground-glass in *this* camera, so as to sharply focus the object 96 in. off? Very likely some will say ·12 in., as one lens has twice as long focus as the other. I was rather astonished to find that the correct reply is ·256, or a little over four times ·06.

The general rule is that the distances we must move the ground-glass varies, not as the focal lengths of the lenses, but approximately as the squares of the focal lengths. It is obvious that in this case, if we leave the cameras in focus for the object at 144 in., the object at 96 in. is ¼ in. out of focus in the 8 in. camera, and only one-sixteenth of an inch in the 4 in. camera, and at once explains why in detective cameras it is better to use the lens of short focus; *the short lens is least out of focus for one object when the other is sharp.*

If not taking too much of your space, I will show the mathematical reasons for this. The sharpness arising from stops will be left out of consideration at present, as similar stops may be used with equal effect on all lenses. Before proceeding let me correct the error I fell into, and some of your readers may have had a similar fall. I supposed depth of focus meant the power to give a fairly good image of *one* object when the focussing glass was a little either way out of the proper position for sharp focus *of that one object.* This is partly true; but if that were all, then the larger lens would possess depth, if not greater, at least equal to that of the short lens. As an example, say we want to photograph a pin point. If the camera be in proper focus, the image of the pin point will be formed by a bundle of rays focussed like a pencil from all over the lens to one point in the ground-glass. With lenses working at similar apertures these pencils would be of similar shape, and if both glasses be, say, one-sixteenth of an inch out of focus the pin point will be represented in the two cameras by small circles of equal size, and we may say the pin point is equally well photographed in the two cameras, and that both lenses possess equal depth of focus. As a matter of fact, the advantage in such a case lies with the longer lens, since, *in proportion to the whole picture,* points and lines will be of smaller size with the large lens, and *in proportion* more nearly what points and lines should be. Hence I conclude that any one surface or plane at right angles to the lens, such as a print to be enlarged or reduced, is more easily focussed with the larger lens, that being the one where the same amount of error in focus (not the same *proportional* amount) makes least *proportional* error in the lines of the picture.

But depth of focus seems not to mean the power of representing *one* object fairly well when the plate is a little out of focus for that object. It means the power to give *at the same time* practically sharp images of various *objects at different distances from the lens.*

The nearer an object to the lens the further must be the focussing glass from the lens, and as the object retreats from the lens, so must the glass approach the lens.

The rule governing the relative positions of object and glass is that if D be the distance of object from lens,

L ,, length of focussing glass from the lens when the object at D is sharply focussed, and F be the focal length of the lens,

all distances being in inches; then $\frac{1}{D} + \frac{1}{L} = \frac{1}{F}$.

Let d be the distance of another object,
and l „ length of glass from lens when d is in focus; then $\frac{1}{d} + \frac{1}{l} = \frac{1}{F}$.

Here, of course, as D and d differ, so must L and l; and the question is, what value of F will make L and l more nearly coincide? If the glass be at L and D in focus, how much is d out of focus, since l is the proper focus for d? or if d be in focus at l, how much is D out?

The answer is, the distance between L and l, or $L-l$, $\frac{1}{L} = \frac{1}{F} - \frac{1}{D}$.

hence $\frac{1}{L} = \frac{D - F}{D F}$, and $L = \frac{D F}{D - F}$.

Similarly we get $l = \frac{d F}{d - F}$.

Therefore $L - l = \frac{D F}{D - F} - \frac{d F}{d - F} = \frac{d F^2 - D F^2}{(D - F)(d - F)} = \frac{F^2 (d - D)}{(D - F)(d - F)}$.

This means that if D or d be in focus the other is out of focus by

$$\frac{F^2 (d - D)}{(D - F)(d - F)},$$

that being the distance between L and l.

D and d we have taken as fixed distances, and we want to try the effect of lenses with different focal lengths or different F.s.

This fraction $\frac{F^2 (d - D)}{(D - F)(d - F)}$ increases as F increases, its numerator growing larger and its denominator decreasing, for the larger we make F, the smaller we make $D-F$, and $d-F$. For distances where F is so small compared with D or d, that $D-F$ may be considered D, and $d-F$ called d, we find that practically the fraction becomes $\frac{F^2 (d - D)}{D d}$.

And this latter fraction increases not merely as F increases, but *in proportion to the square of* F, so that a lens of 8 in. focal length will cause one object to be out of focus, not merely *twice* as much as the lens of 4 in., but *four times* as much, since $\frac{8 \times 8}{4 \times 4} = 4$.

If D and d are not very large compared with F, then we cannot say that $D-F$ and $d-F$ are practically D and d. In this case the difference is still more in favour of the lens of shorter focus, as a few examples wil show. It means that the longer the focus of the lens the more difficult it is to focus at once objects *at different distances* from the lens.

Suppose we have an 8 in. lens, and two objects 12 ft. and 8 ft. away. If one be in focus, the other is out by

$$\frac{F^2 (d - D)}{(D - F)(d - F)} \text{ that is } \frac{8^2 (144 - 96)}{(144 - 8)(96 - 8)} = \frac{64 \times 48}{136 \times 88} = {\cdot}256.$$

But if we use a lens of shorter focus, say 4 in., the amount out of focus is only $\frac{4^2 (144 - 96)}{(144 - 4)(96 - 4)} = {\cdot}06$.

And ·256 is just over four times ·06, as stated in the opening part of this letter.

If we go nearer the same two objects, so that they are only 10 ft. and 6 ft. away, the advantage of the shorter lens becomes more apparent, for with the 4-in. lens

$$\frac{F^2 (d - D)}{(D - F)(d - F)} \text{ becomes } \frac{42 (120 - 72)}{(120 - 4)(72 - 4)} = {\cdot}097.$$

With the 8-inch lens it is $\frac{8^2 (120 - 72)}{(120 - 8)(72 - 8)} = 428$.

The latter is $4\frac{1}{2}$ times as much out of focus.

For objects 4 ft. and 8 ft. away the amounts out of focus are ·14 and ·70 respectively, and the advantage is still more evidently with the 4-in. lens.

The converse way to consider the question of depth is to focus sharply for D and find the farthest and nearest distances d which will then be practically in focus. I have not gone deeply into it, but I daresay it practically asks what are the greatest and least distances d which will still leave the out-of-focus

$$\frac{F^2 (d - D)}{(d - F)(D - F)} \text{ or } \frac{F^2 (d - D)}{d D}$$

an inappreciable fraction?

If you get a minus numerator, don't forget that the formula is for $L - l$, and that if $l -$ be greater than L, as it will when d is *less* than $D -$, the formula becomes

$$\frac{(D - d) F^2}{(d - F)(D - F)} \text{ to get } l - L.$$

This is a very easy problem. You have only to decide what you will call an immaterial error in focus.

If you say $\frac{1}{50}$ of an inch is scarcely measurable, you have to find d from $\frac{F^2 (d - D)}{d D} = \frac{1}{50}$, that is $F^2 \left(\frac{1}{D} - \frac{1}{d}\right) = \frac{1}{50}$, or $\frac{1}{D} - \frac{1}{d} = \frac{1}{50 F^2}$.

It is easily seen that the smaller you make F the greater you make $\frac{1}{D} - \frac{1}{d}$, and consequently the greater you make the $d-D$, since D is a fixed distance; again showing that the shorter lens will the better represent at the same time two objects at different distances from the lens.

For example, let D be 20 ft. and F 4 in., $\frac{1}{D} - \frac{1}{d} = \frac{1}{50 \times 4^2} = \frac{1}{800} = \frac{1}{240} - \frac{1}{d}$, $\frac{1}{d} = \frac{1}{240} - \frac{1}{800}$ $\frac{1}{d} = \frac{7}{2400} = d = \frac{2400}{7} = 343$ in. is the *longest* distance practically sharp when we focus on an object 20 ft. away with a 4 in. lens.

If we use an 8 in. lens we get—

$$\frac{1}{D} - \frac{1}{d} = \frac{1}{240} - \frac{1}{d} = \frac{1}{50 \times 8^2}.$$

$$\frac{1}{d} = \frac{1}{240} - \frac{1}{3200} = \frac{37}{3600},$$

$$d = \frac{9600}{37} = 260 \text{ in. with 8 in. lens.}$$

With 4 in. lens 343 in., a very striking difference.

I do not say $\frac{1}{50}$ of an inch is inappreciable. I have taken it merely as an example, and for calculations of this latter kind I would refer your readers to the "Dictionary of Photography." I think it gives formulæ or rules only, without the proofs.

To find the *nearest* distance in focus we must work from $\frac{1}{d} - \frac{1}{D} = \frac{1}{59 F^2}$, but no example are necessary.

In conclusion, a word on the increased depth of focus arising from the use of diaphragms. From my former remarks on photographing a pin point it will be evident that as the pencil of light is formed by rays from a smaller part of the lens the pencil itself will be narrower though as long as before; consequently its point will be thinner and sharper, and if the glass be a little out of focus so that the glass is not placed exactly at the point of the pencil, but, say, $\frac{1}{15}$ of an inch either way, it is evident that the point will be represented by a minute circle, but one not so large as if the pencil were thicker—that is, if the diaphragm were larger or the full lens used. As a smaller diaphragm makes a smaller error, it is evident that we get as good a result by being, say, $\frac{1}{8}$ of an inch out of focus with a small stop as we would if only $\frac{1}{16}$ of an inch out of focus with a stop twice as large in diameter. It was shown that depth of definition with similar stops varies inversely as the squares of the focal lengths of the lenses, but the additional depth arising from the use of smaller stops varies not inversely as the *square* of the stop diameters (as is the case with the increased time of exposure arising from the decrease in amount of light reaching the plate), but only inversely *as the diameter alone*. If we were simply photographing a point we should square, since the area of the circle representing the point would vary as the square of the stop. But a line or succession of points or circles is not increased in both length and breadth by a larger stop, as a circle is; it is merely made broader, and as a picture is made up of lines it is evident that its sharpness depends on that of the lines, and the sharpness of the lines depends only on the diameter of the pencil making the lines, as any one may see by drawing one with a lead pencil.

Summary: Depth of focus *increases* as we *decrease* the square of lens focus or diameter of stop.—Your obedient servant,

RICHARD FARMER.

P.S.—The rules for copying to a certain size may be found from

$$\frac{1}{D} + \frac{1}{L} = \frac{1}{F}.$$

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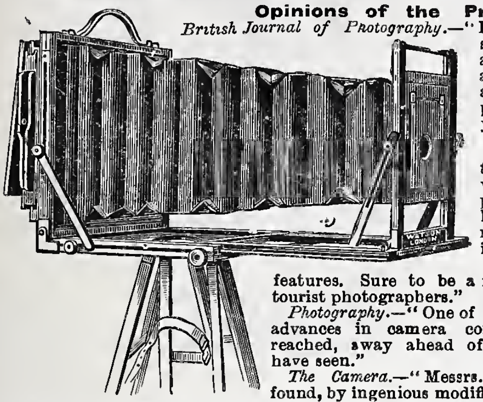

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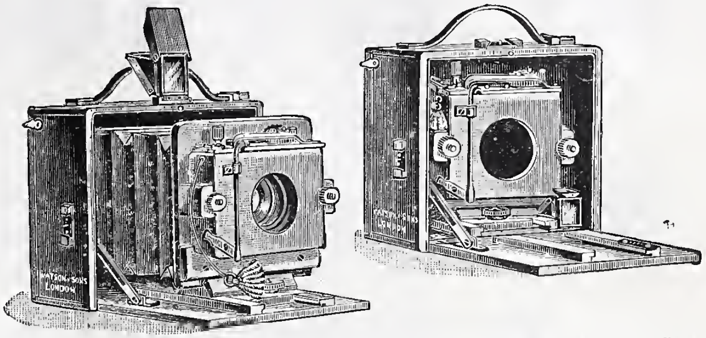

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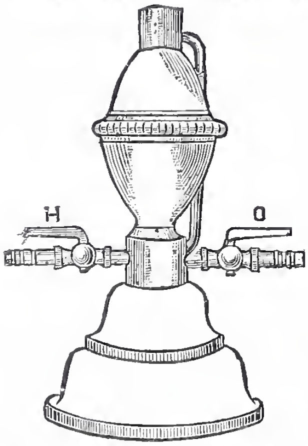

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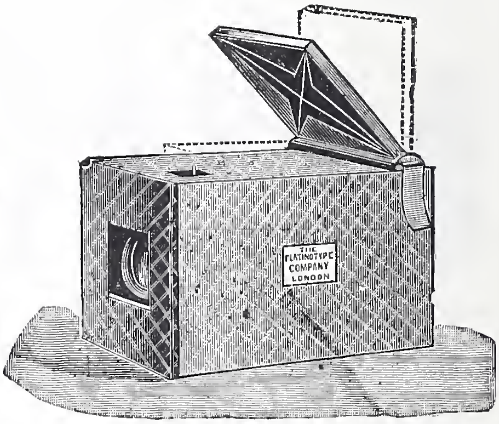

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Suppose we want the copy to be n times the original every way, or $L = n\,D$.

$$\text{Then } \frac{1}{D} + \frac{1}{L} = \frac{1}{D} + \frac{1}{n\,D} = \frac{1}{F}.$$

$$\frac{n+1}{n\,D} = \frac{1}{F}\ (n+1)\,F = n\,D.$$

We see at once that $n\,D$, that is $L, = (n+1)\ F$, and that

$$D = \frac{(n+1)\ F}{n}$$

For example, we wish to enlarge to three times with an 8 in. lens. Rack out focussing glass to $L = (3+1) \times 8 = 32$ in.

Place the original $\dfrac{(3+1) \times 8}{3} = \dfrac{32}{3} = 10\frac{2}{3}$ in. in front of lens.

The rule for reducing, so that the original shall be n times the copy, found from

$$\frac{1}{n\,L} + \frac{1}{L} = \frac{1}{F} \text{ gives } n\,L = (n+1)\,F. \quad L = \frac{(n+1)\ F.}{n}$$

To reduce to $\frac{1}{3}$ with 8 in. lens:—

Place object at $n\,L = (3+1) \times 8 = 32$ in. in front.

„ plate at $L = \dfrac{(3+1) \times 8}{3} = 10\frac{2}{3}$ in. behind lens.

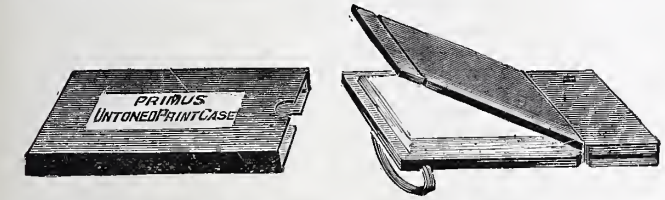
If we bear in mind that when the object is in focus at the plate they would still be in focus were positions of plate and object exchanged, except that the sizes of the image of the object would be reversed, we will have no difficulty in understanding the laws governing depth of focus and copying.—Yours, etc., R. F.

* * *

Apparatus.

THE "PRIMUS" PAPER CASE.

W. Butcher and Son, of Blackheath, have sent us one of the above, which is constructed of stout boards, and, as shown in diagrams, consists of an inner case with pocket and flap, which is held firm by an elastic band, which keeps the paper from the action of the air and light, and a further protection is afforded by the outer case. To all practical printers who know the difficulty of keeping cut paper and untoned prints flat and free from the influences of atmosphere and light these will be of great use, and the prices are reasonable, viz., quarter-plate, 1s.; half-plate, 1s. 6d.; whole plate, 2s. Post free, 3d. extra.



METOL-ANDRESEN.

Messrs. Schwarz and Co., of Old Broad Street, have sent us samples of the above, which we have tried during the last week, working according to the formula recommended by them, which is as follows:—

I. In 1 quart of distilled water dissolve first $\frac{3}{4}$ oz. of Metol, and then successively 7 oz. of sulphite of soda (crystals), $3\frac{1}{2}$ oz. of carbonate of potash, and $\frac{1}{10}$ oz. of bromide of potassium. For developing gelatine dry plates this solution, which keeps well, may generally be diluted with 3 or 4 parts of water. For plates having a tendency to strong contrasts take less potash (viz. $\frac{3}{4}$ oz. only) and also less or no bromide of potassium at all; plates working smoothly, however, require a more concentrated solution and more bromide of potassium. (Dilute, for instance, only with 2 or 3 parts of water and take about $\frac{1}{4}$ oz. of bromide of potassium when preparing the solution.) In order to develop bromide papers dilute the above-mentioned solution with 15 to 20 parts of water.

To photographers who prefer to work with separate solutions we recommend the following recipe:

II. 1. Dissolve $\frac{3}{4}$ oz. of Metol in 1 quart of distilled water, add 7 oz. of sulphite of soda (crystals), and shake until it is dissolved 2. Dissolve 7 oz. of carbonate of soda in 3 quarts of water. For use mix, for instance, 1 part of solution No. 1 with 3 parts of solution No. 2 To 100 cub. cent. (about $\frac{1}{5}$ pint) of the ready-made solution add, according to the nature of the plate, 5 to 10 drops of a solution of bromide of potassium (1 : 10).

For practical workers we think Metol is likely to be found of very great value, the delicacy and softness of the images being remarkable, and the ease with which density is obtainable decidedly superior to that of Amidol.

A very convenient form of this developer has been introduced by Messrs. Schwarz, in the shape of the Metol Cartridge. One of these little cartridges is broken into 7 oz. of water, and forms a developer in one solution, which is amenable to considerable variation to suit particular cases.

GLYCIN-HAUFF.

Fuerst Bros., of 17, Philpot Lane, have sent us a sample of this developer. It is totally distinct in action from Amidol and Metol, and has in our hands given extremely good results for black and white work. And for bromide paper it gives very fine tones. Practically, it may be considered to be a "harder" developer, that is, one which will give increased contrasts.

The directions for use are:

(1) For Soft Development:

Solution A. (To be warmed slightly).

Glycin	60 gr.
Carbonate of potash	230 „
Sulphate of soda crystal (pure)	180 „
Water	$3\frac{1}{2}$ oz.

Solution B.

Carbonate of potash	150 gr.
Water	$3\frac{1}{2}$ oz.

For use mix one part of A with two parts of B.

(2) For Hard Development:

Glycin	75 gr.
Carbonate of potash	385 „
Sulphite of soda crystal (pure)	385 „
Water	$3\frac{1}{2}$ oz.

For use to be diluted up to three times its volume.

BERESFORD'S SPECIALITIES.

Mr. F. Beresford, of 14, Bridge Road West, Battersea, S.W., has sent us samples of his new specialities which he has brought out.

The "Paragon" Changing Bag.

Constructed on the same lines as the well-known Eclipse changing bag, this is an improvement, in that it is fitted with a window and eyepieces, so that the operator may watch the operation of changing his plates. As the nose and mouth are quite free, there is no difficulty in breathing. For tourists it will be found of very great value, as it allows one to change in the open without any danger. Price, half-plate, 10s.; whole-plate, 12s. 6d.

The "Eclipse" Light-tight Case.

This has been designed for use with one of the changing bags, and is in the form of an envelope, made of black and ruby fabric, to hold six plates in pairs, film to film, in separate pockets. Prices, half-plate, 1s. 6d.; whole-plate, 2s. 6d.

The "Eclipse" Focussing Cloth.

Another practical and useful contrivance, constructed of stout black serge or velveteen, or waterproof. It is provided with a series of loops and buttons and an elastic rim, so that it can be instantly adjusted to the camera, and does not blow about, and thus leaves the hands free and serves as a much better protection to the camera than the ordinary kind. Prices in black material, half-plate, 3s.; whole-plate, 3s. 6d. In velveteen or waterproof, 5s. and 6s. 6d. respectively.

We can thoroughly recommend these three accessories as practical and useful.

Round the Royal Academy.

BY "VIATOR."

"D. S. M." HAS made it rather a difficult matter for any one to go to the Royal Academy on critical thoughts intent. Happily, however, the great majority of visitors are about as uncritical as they can well be, in "D. S. M.'s" sense or any other. They go because it is the proper thing, and so long as this is the case will such remarks as those recorded in an evening paper the other night be overheard. Curious indeed must be the state of mind of that lady who, looking at Mr. Briton Rivière's "King's Libation," could exclaim, "What beautiful blue eyes that lion has got!" But among the visitors to Burlington House during the next two or three months are sure to be numbers of amateur photographers, and it may not be amiss to take a cursory glance at the Exhibition from their point of view, and to see, if possible, what the premier exposition of British art can teach the disciples of the camera. Visitors of this type, if they are wise, will not go the round of the pictures following the despotic order of the catalogue. It is a matter of doubt, indeed, if any one does, or attempt to do, or even if he attempted would be equal to doing, such a thing. But even with liberal "skipping" of the less striking pictures, the photographic visitor who had struggled and squeezed through the eleven rooms given up to oil paintings, would not be in fit case to appreciate to the full the Water Colours Room.

Here, then, should a start be made, for there seems a closer relationship somehow between the productions of the camera and pictures in water-colours than between the former and works in oils. It would not be difficult to account for this, but it is not necessary. It is enough to state the simple fact that there is more, proportionately, to be learned in the one water-colour room than in all the eleven devoted to oil-paintings. Take, for instance, any of Mr. Goodall's pictures, especially "The Way to the Village," or Mr. Sidney Cooper's "On a Farm in Kent." See how perfect is the faculty of artistic selection which has guided the artists. Mr. A. E. Brockbank's "Dream of Spring," too, with the rustic foot-bridge on which the girl stands in the foreground, looking out over the opening fields, is a charming piece of work. But perhaps the gem of the room in this kind of work is a dainty picture of two girls leaning on the rail at the foot of a flight of rustic steps, called "Interested" (1841). For broader effects of landscape "The Vale of the White Horse," with its golden shadow-swept expanse, is worthy of notice, and Mr. Wyllie's "Off to the Cape of Good Hope" is distinctly good, as well as large. An excellent figure study is "The Girl he Left behind him" (1,087), by Mr. W. J. Morgan, the quiet sorrow in the face of the lass that loved the sailor, who waves his hand on the coach rapidly rolling out of sight, contrasting admirably with the laughing carelessness of her companions. Three other pictures full of suggestiveness are "The Crescent Moon Foretells the Night" (1,137), "A Summer's Sunlit Sea" (1,136), and "The Thames at Westminster" (992).

These are some of the more striking works on this quite charming room, and the camerist in search of hints to guide and help him in his work cannot fail to find them here. This help will come to him chiefly, perhaps, in the education of his artistic sense by looking upon the examples of such proficients as those whose work is here exhibited. The artist, whether in oils or in water-colours, has to paint with brains and pains. The photographer, although endowed with the fatal facility of the camera, should no less use his brains and take great pains. Over-production, the economists say, is responsible for many commercial evils, and over-production in the realm of the camera carries with it of necessity a lower standard of work. The photographer should devote all his energies to the finding and arranging of suitable pictures, and this even more than the painter, who has to give so much time to the mechanical execution of that which is done for the camerist by the sun *uno ictu.* Especial emphasis needs to be laid on this point, because it seems that herein lies the great advantage to photographers of a look round the Academy. The exquisite gradations of tone and the perfect blending of colour are not for the camerist yet, whatever the future may hold in store; but the eye to see a charming picture and the careful art to reproduce it in the photograph to the best advantage are his. In short, his best artistic effects are to be gained chiefly by his faculty of selection, while the painter has also to rely very largely upon his powers of execution. In a final glance around the Water Colour Room there are two or three perfect portraits to be noticed: "Nanetta" (985) and "Evelyn" (1052) are both exquisite examples of this branch of art. Mr. Fahey sends two beautifully executed sketches of streets in Hyeres, which, with numerous other foreign subjects done in oils—such as, for instance, "The Cobbler, Cairo" (715), "Damascus" (461), with white minarets rising out of the fields of green, "a pearl set in emeralds," as the Arabs call it, and the "Market in Egypt" (462)—challenge photographers to enter more boldly upon this field.

In the eleven galleries now remaining, to say nothing of the black and white and architectural rooms and the sculpture, there are three classes of pictures that will chiefly attract the visitor to the Academy. These are first the portraits, which seem to be exceptionally numerous this year; then figure studies; and lastly, land and sea scapes. Of the first class there are examples of every shade and degree of merit, some as easy, natural, and graceful as they evidently are true, and others awkward, stiff, and unintelligent productions, which would be put to shame by any self-respecting photographer. The same lesson of careful preparation and selection needs here to be inculcated, and is enforced by the work of the best artists, such as Mr. Sargent, whose "Lady Agnew" (30) is simply perfect, such as Mr. Hubert Herkomer, who, however, is unequal, as witness his portrait of Sir Algernon West (895), and such as Mr. Alma Tadema, whose "Dr. Joachim" (187) is admirable. Other portraits well worth studying are those of G. H. Pember, Esq. (154), of Mrs. Elliot Lees (247), of Adam Black, Esq. (351), by the late Mr. J. Pettie, and of Mrs. Egbert Holland (393). In Gallery X. there is an exquisitely natural painting by Kate Perugini, of "Dora" (843), who looks perfectly sweet in her gown of blue, her russet hose, and her skipping-rope in her hand. In the same gallery, and close at hand are to be found two other child portraits most daintily executed, Nos. 845 and 847; and from Gallery XI. "Milly" (936), by Miss Ethel Wright, may be selected for an equal share of praise. In Gallery III. there are two portraits, Nos. 137 and 152, which may be looked upon as warnings, and there is a most unpleasant awkwardness about the Right Hon. H. H. Fowler, M.P. (167), and "The Hon. E. W. B. Portman (177).

Of the second class we have mentioned there are two particularly good illustrations in Gallery III.—Sir John Millais' "Pensive" (204) and his "Merry" (217), the former a most charming and characteristic composition. "June Roses" (240) is a startlingly realistic painting, so lifelike that the roses seem to sway in the summer breeze, and bear their perfume to the beholder; and "Fisher-folk" (288) is a careful study, well conceived and nicely executed. From "I was a Stranger and ye took Me in" (305) there is much in grouping and characteristation to be learned; while Stanhope A. Forbes' picture, "The Lighthouse" (330), a delightful exposition of the tenets and the merits of the Newlyn School, is rendered with a force and precision that attract all eyes to it at once. It is by the study of such compositions as this that the photographic artist may profit most. "Convalescent" (400) is a most natural and pleasant piece of painting, and well within the compass of the camera too. There is, perhaps, too much in "The Missing Boat in Sight" (536), both for the artist's canvas and for the photographer's lens, but the individual studies are treated with great discrimination and admirably realised. Gallery IX. is full of small pictures, which are, however, none the less worthy of careful inspection. "The Bashful Lover" is a most humorous piece of work, and "Overhauling the Nets" (790) and "The Rogue" (797) are distinctly clever productions, In the last gallery "Moorland Princesses" (874), by Mrs. Forbes, is a careful and original painting of two fair girls most naturally resting by the side of a moorland track, watching the cows as they go jolting homewards.

Just as for the wearied visitor there is but little strength left after he has gone even cursorily round the galleries, so now there is but little space left for a few words on the third class of pictures from which the amateur photographer may learn something—studies of landscapes. One of the most delightful pictures of this class is Mr. H. W. B. Davis's "Elder Bush" (103), in Gallery II., a perfectly simple and perhaps, therefore, perfectly beautiful rendering of one of the thousand pictures which nature paints with lavish hand along every rural road and in every country lane. Mr. Leader has four examples of his graceful skill that will charm all who know his work and the Surrey scenery he loves and paints so well. Of Mr. Sidney Cooper's work it is unnecessary to speak, but there are one or two other examples of such admirable work in this department that they must not be overlooked. Such are "Summer Mists" (174), "Reed Land in Winter" (194), a most strong and possible study of riverside scenery, making a perfect picture, "Autumn's Gone" (215), "The Silver Dart" (598), "A Tranquil Pool" (718), "The Marshes at Winchelsea" (761), and "By the Margin of the River" (764). "Reflections" (820) and "Meadow Sweets" (11) may be finally mentioned, and those who work in seascapes should linger long before the exquisite studies of Mr. Henry Moore, "After a Breeze" (51), and "Hove to for a Pilot" (246). His seas are wonderful, and may be compared with Mr. Brett's "Sicilian Sea" (387), which is a delightful return to his old manner.

Besides all these there are many pictures, such as Mr. Dicksee's magnificent contribution, which are, of course, quite beyond the scope of the photographer, though much is to be learned from them indirectly. And perhaps the great lesson of the Exhibition is to be found in that pregnant sentence of Ruskin's which is printed on the title-page of the catalogue, and in which a standard is set up for all who aspire to be called artists, in whatever sphere they labour—"Fine Art is that in which the hand, the head, and the heart of man go together.

Dry Plate Making at Home.

By R. Child Bayley.

(*Continued from page* 319.)

The formulæ giving in the foregoing articles may be taken as typical of the two methods of obtaining sensitiveness by ammonia and by boiling respectively, but when once the outlines of the process are fairly mastered it will be found that the details may be varied in several directions.

The relative quantity of gelatine and silver bromide are capable of variation within wide limits, yielding plates greatly differing from one another in their physical properties. Plates containing much gelatine are generally glossy in appearance and have a hard surface, while those in which a larger proportion of silver bromide is employed have a matt-surface. In addition to this the amount of gelatine present at the time of the formation of the silver bromide exercises a very important influence upon the chemical changes taking place. An increase in the quantity of gelatine has the effect of retarding the chemical action taking place, the silver bromide being formed slower and in a finer state of division. In consequence, such an emulsion would require to be cooked for a longer period to obtain the change in appearance which is generally associated with its increased sensitiveness. It has also been pointed out on several hands that a plate rich in gelatine requires less bromide in development than one rich in the other constituent.

A variation of the method of washing is one which will very possibly commend itself to those making but small batches at a time, as while certainly more expensive than the method of squeezing through canvas, it saves a very considerable amount of time and trouble in changing washing water, etc., and at the same time should it be desired to preserve the emulsion for a considerable time in a dry state, it offers every facility for doing so. It consists in the employment of methylated spirit to precipitate the emulsion, the spirit depriving it of the bulk of its water, and at the same time of the soluble salts, which it is required to remove, the modification employed being the one first suggested by Mr. W. K. Burton.

After boiling the emulsion, about 1 oz. only of the remaining gelatine is added, and the solution is allowed to cool. When cold it should be poured in a thin stream with constant stirring into about three times its bulk of methylated spirit.

The gelatine will be found to be precipitated, some to the bottom of the vessel, and the remainder round the rod. It can then be collected, rinsed a few times with water, and redissolved, when it will require the addition of a little water to make it up to its original bulk.

While it has not been shown that the employment of the new methylated spirit is impracticable with this process, it seems hardly likely that it is suitable. It is also held by some that precipitation by alcohol, however thoroughly carried out, does not remove the soluble bromide in anything like so thorough a manner as can be accomplished by washing. The process possesses a great advantage in very hot weather, since when ice is not available, the ordinary method of washing is attended by much difficulty.

The various means of obtaining sensitiveness and the extent to which they may be employed afford other variations which may be introduced. The ammonio-nitrate process already described gives plates of fully the rapidity of most brands on the market known as ordinary. An emulsion made a few weeks ago by that method has been tested for me on Hurter and Driffield's instrument. Dr. Eder has, however, introduced another plan by which a more sensitive emulsion can be obtained. In this method boiling is first resorted to, and the result already very sensitive, is cooled and treated with ammonia. He claims that in this way a degree of sensitiveness can be obtained which is beyond that which could be reached by the prolonged employment of cooking only. The proportions adopted may be those given for the first described ammonio-nitrate method, the ammonia itself of course being omitted in the first place. After the addition of the silver nitrate, the emulsion is placed in the saucepan and boiled for half an hour, at the conclusion of which operation it is cooled down to about 100 deg. Fahr., and the remaining gelatine added. It is then allowed to cool still further, and when at 70 to 80 deg. Fahr. 50 minims of strong ammonia are well stirred in. It must now be placed in a saucepan of water at 100 deg. Fahr., and allowed to remain there for at least half an hour, at the conclusion of which time it may be set and washed in the usual way. It is important in this as in the other method that the temperature after the addition of the ammonia should not be allowed to rise too high, or fog is certain to be the result; 100 deg. Fahr. should be taken as the limit, and this should be on no account exceeded. Dr. Eder states that this digestion with ammonia may be allowed to continue at 100 deg. for two hours without fog resulting.

For the development of plates prepared with ammonia, and which will not in consequence stand development with pyro and that alkali, whatever the cause of such behaviour may be, there will be found no more suitable formula than the following one, which can readily be prepared from ten per cent. stock solutions.

Pyrogallol	2 gr.
Sodium carbonate (crystallised)	4 „
Water	1 oz.

The pyro should be kept in solution with four times its weight of sodium sulphite, when the resulting negatives will possess a greenish brown colour of excellent printing qualities.

FAILURES AND THEIR CAUSES.

Perhaps the worst enemy the amateur plate maker has to contend with is what is known as green fog. It is readily recognised by its characteristic appearance. The plate appears while in the developer to be fairly satisfactory, and it is not until it has spent some little time in the fixing solution that its real condition becomes fully obvious. The shadows will then be found on looking at the back of the plate by reflected light to be of a more or less bright green colour, while by transmitted light they appear red, yellow, or pink, an appearance, by the way, which is called dichroic.

There seems to be no method of entirely preventing this fog in plates prepared by the ammonio-nitrate method when developing with ammonia, although by fully exposing and employing a minimum of both ammonia and sodium sulphite in the developer it can be practically rendered harmless. A still better plan, as already mentioned, is to use sodium carbonate in the place of ammonia, which will generally answer perfectly. With plates which have a tendency to green fog, the new developers rodinal, amidol. etc., should not be used; the former especially seems to be, if anything worse than pyro ammonia in its effects.

A much more dangerous foe than green fog is grey fog, which renders the emulsion in which it occurs practically useless unless it has been found before coating the plates. It makes its appearance over those parts of the plate covered by the rabbet of the slide as well as the exposed portions, by which it can be distinguished from the fog which is due to diffused light in the camera or to excessive exposure. It is due to the silver bromide in the film having been exposed to some influence which has practically the same effect upon it as exposure to light, and the possible influences are several. It may be that the light used during the preparation of the emulsion is not sufficiently non-actinic, either through the employment of unsuitable glass or fabric or through the leakage of white light into the dark-room. Another cause is prolonged cooking or, in the ammonio-nitrate process, the employment of too high a temperature. If the emulsion in its finished condition has been kept so long that decomposition is set up in the gelatine, this fog is certain to occur.

It can be cured by the addition of a little cupric chloride solution to the emulsion before filtering, or the plates can be bathed in a dilute solution of the salt, well washed, and dried. It appears to lessen the sensitiveness slightly.

Another cure consists in squeezing the emulsion through canvas into a ten per cent. solution of potassium bichromate, allow it to remain in that solution for an hour and, then washing in the usual way. This is a simple and easy way of eliminating it; in fact, the first washing water can always be a solution of the bichromate with advantage, except where the highest possible sensitiveness is required, but it has the drawback of not always having the required effect. There seem to be some kinds of general fog which the bichromate treatment is powerless to remove.

Frilling and blistering are due generally to the employment of too soft a gelatine, of which Nelson's No. 1 is a conspicuous example; by mixing with it Simeon's or Heinrich's in equal proportions this tendency is entirely overcome. The omission of chrome alum will render the plates far more likely to frill, as will excessively long drying. When plates take a long time to set, frilling is frequently caused by the settling down of the heavier particles of bromide to the glass, which prevent the adhesion of the gelatine thereto. In a recent example in which the plates had taken about half an hour to set and in which frilling was extremely troublesome, on stripping the film from the glass the latter was completely covered with a fine powdery deposit of silver bromide.

Plates which are known to frill badly should be treated with a saturated solution of alum and well washed before development if the fault manifests itself during that operation, but preferably after development should it not appear until they are in the fixing bath. In the case of fresh batches of emulsion the cure has been indicated sufficiently above, when pointing out the cause.

Pits which appear like little dimples on the surface of the plate when set are said to be due to grease, although this hardly seems to have been proved, and their real cause may still be considered unknown. They are also said to occur when Coignet's gelatine is used, although this is not invariably the case, as I myself can testify. They seemed to be formed far more frequently when the plate or the emulsion is too hot and a long while is occupied in setting, than when the opposite is the case. Should they be very troublesome, it is best to try another make of gelatine.

There is yet another defect which may possibly show itself, and that is the silver bromide appearing coarse and granular. Boiling for too long a time, or with an insufficient amount of gelatine is a cause, as also is the too sudden mixture of the soluble bromide and silver nitrate. When discovered and its cause traced, it may be prevented in the future, but cannot be cured.

Holiday Resorts and Photographic Haunts.

JAUNTS NEAR LONDON.

By J. H. Isaacs.

To the amateur photographer there is nothing more delightful than on some sunny holiday morning, with traps packed, and himself in good "condition," to make his way by devious roads and byways, through the green lanes and over the pleasant fields of this most delightful little island of ours. What greater charm to the soul than to seek the beautiful in nature, not with the eye of a mere "professional" but with the simple aim to live, if even but for a few hours, a healthy and joy-giving existence, and to realise this charm in country excursions? To watch the expanse of field and valley, interlaced with their silvery streams, changing during each moment in ever varying harmony of colour. It is in this drinking at the fountain of beauty, so to speak, that the true artist finds the best nourishment for his life, and the highest inspirations for his genius. The study of nature in its aspect of the beautiful widens our ideas, touches us with new impulses, and gives us the standard by which we are able to measure and compare all things which come under the name of beautiful. For is not all art but the imitation of Nature's work, and the unconscious striving of the human mind to reach the ideal which it cannot formulate, but which is everywhere abundant—in the joyous happiness of the child's face as well as in the stern furrows of the man's brow—in the graceful curves of the woman's form—in the harmonious blending of colours in an autumn sunset? What the artist is ever striving to obtain is the formulated statement of the rules (if any such can be framed) by which he may reproduce such ideals.

The amateur photographer who has, at the same time, the artist's instinct needs no such profound insight. The artistic instinct which he, along with nearly all of us, possesses in some measure, tells him that the view from Richmond Hill on a slightly misty summer's morning is beautiful. At any rate, it is by that term that he calls it, after experiencing the peculiar emotions which the sight raises. To appreciate this he need not vex his soul with formulas and canons of art. He looks up at the sun, pats his camera, and says to himself, "I'll ask Old Sol's help in this matter." And the old boy does help, and that right faithfully too. And the beauty is fixed to give joy to others, and to fill the mind with happy memories.

The amateur photographer living in London and seeking for excursions where he may enjoy such moments must consider himself extremely fortunate. We believe that such opportunities present themselves near no other large town in the world, and our object in the present article, and we hope in some future articles, is to point out and act as a guide to a few such excursions in the immediate neighbourhood, which may be easily and inexpensively made. This week we propose to go south-west. We may say, in passing, that the county of Surrey is a veritable storehouse of beauty, and crammed with the food which a lens worth calling a lens delights to enjoy.

An early morning train from Waterloo Station or the City District Railway will take you for a few pence to Putney. Be careful to provide yourself with something with which to minister to the "inner man." That gentleman is a very sensitive individual, and we may lay it down as a rule of the most vital importance and one which if it be not one of the canons of art, ought to be, that your ideas and appreciation of the beautiful depend largely on his humour. See that he is always in a good humour. Arrived at Putney Station turn to the left up Putney Hill. If you go by the District Railway cross the bridge and go up the High Street, past the South Western Station on your left. At the top of the hill Putney Heath opens itself to your view on your right. Keep the Heath and Wimbledon Common to your right and walk for about a mile, until you arrive at a road on your left called Somerset Road. You turn down this, for perhaps 900 yards, to a turnstile on your right where the road bends to the left. Pass through the turnstile and along the gravel path. About midway in it you will find a subject for a picture either directly in front of you, or on your right with a damp looking plaster-covered house in the foreground, or through an opening in the hedge on your left. The massy foliage, with its openings of sky and soft distance effect, is very beautiful. On a very sunny morning this spot is extremely pretty. Several pictures may be obtained here from various points, and all will repay the trouble.

From here make for Merton Park Station by passing through this gravel path to the end to a road. Here turn to the right and then along Church Road to the left. St. Mary's Church, which is on your left, is well worth taking with you. The spire is much more modern than the main building, but its erection has added a grace which the square castellated tower did not possess. The grounds in which the church stands are prettily laid out, and well kept, and make the view picturesque.

After leaving the church, turn down St. Mary's Road, and soon on your right will appear a cross-road. Take the right, and the right again at the end of this, which will take you to the bottom of Wimbledon Hill, near to the Free Library. To get to Merton Park Station, turn to the left past Wimbledon Station, over the bridge, and to the right through Hartfield Road. At the end of this road is a path parallel with the railway, which will lead you to the booking office. From here take ticket for Carshalton.

Arrived at Carshalton, leave the station and keep to the right until in sight of Carshalton Church. Here you will have a great treat in the very picturesque ponds formed by the irrepressible river Wandle. Every point here is delightful to look at. Perhaps one of the quaintest of old village high streets is to be seen in Carshalton. The houses all seem to have grown out of each other, and strike one as if the bond of union were something in quality far subtler than mere mortar. On a quiet evening, when the shops are closed and the village begins to look sleepy, you might imagine yourself spirited back two or three hundred years, if it were not for the policeman you see standing near the closed Queen Anne's Well. But everything is very charming, very quaint, and falls on you with a wave of peaceful innocence. The river Wandle winds about everywhere. Disappearing at one spot, it reappears with an impudent bubble at another. It turns up at the most unexpected places. Past the "King's Arms Hotel," a picturesque old inn opposite a still more picturesque butcher's shop, it murmurs by your side along the main road. Open a dark painted wooden gate on your right, and here you will be delighted beyond measure with the view through the park. A pale yellow stone house on the right, with an undulating open glade in front, through which the Wandle tumbles along, falling with a slight waterfall. The background towards the left is a mass of fine dark foliage, a perfect balance in colour and effect to the view on the right. The whole is a perfect picture.

One may ramble about Carshalton for hours together and never tire of the beauty of the place. It fills one with rest and contentment. Here the amateur photographer may safely allow himself to be beguiled, and permit himself to exercise the power of his art. We feel convinced that his success will enable him to impart to others some of its gentle influences of landscape and of sky, to be alive to which, as Emerson says, is one of the attributes of the cultured mind. He will come home to his friends laden with the fruits of his morning's harvest, to share with them of the peace, and content, and joy which he experienced.

The London, Brighton, and South Coast line will take you, camera, plates and all, to London Bridge or Victoria for one shilling—but you must travel third class.

* * *

East London.—Ordinary meeting on 9th inst., Mr. Chas. Tylee in the chair. Messrs. Copping and H. C. Gould, jun., were elected members. Mr. Pascoe (President) then proceeded to develop several exposed Imperial plates with pyro-soda formula. The members appeared to be highly interested; a lengthy discussion upon the merits of the developer followed, the principal querists and speakers being Messrs. Wilkinson, Bennett, and Tylee; the President made a brief reply, and the Field-days for the month were fixed, namely, to Chingford, Whepps Cross, and St. Albans.

Fairfield.—The ordinary meeting was held on 9th inst. The chair was taken by Mr. F. H. Elsby. After the usual preliminaries had been put through, the Chairman called on Mr. S. H. J. Smith to give his paper on "Toning Gelatino-chloride Paper without Gold." Mr. Smith proceeded to do this in a most satisfactory manner. He used two processes, (1) by replacing gold with Thiotone, and (2) by Dr. Andresen's Tone-fixing cartridge. The results in both cases were very successful, especially with Thiotone, on account of the variety of tone obtainable and the extreme cheapness. At the conclusion of Mr. Smith's demonstration, the chairman called on Mr. W. T. Sutton to bring forward the new enlarging process, "Cresco-Fylma," which created a good deal of interest.

The A B C of the Lantern.

Colour. Experiments on colour with the optical lantern are some of the most interesting that can be shown, but they require attention and apparatus. The best method of showing what colour is, or rather how we get colour, is by arranging the lantern with a narrow slit, and placing in front of it a prism so as to obtain a spectrum, but the lantern must be placed opposite the screen and not at an angle as usual in spectrum experiments. If a spectrum be now thrown on the screen, we may prove that white light is composed of the seven constituents, and by placing a second prism in front of the first, but the other way up, that is with the base close to the apex of the first prism, we shall recompose our spectrum and form white light. Now by sliding in between the prism a bit of black card, so as to cover up part of the rays, it will be found that we again get colour on the screen. The explanation of this is that by the insertion of the card we have cut off some of the rays, and the remainder, instead of making white light, produce colour. There are other methods of doing this, but as they require more expensive apparatus we do not include them.

Absorption of colour is best shown by arranging the lantern and prism in the ordinary way so as to produce a spectrum, and to cover up half the slit with some coloured material, such as glass or gelatine. This is preferable to placing the coloured screen in the path of the whole of the rays, as it allows of part of the spectrum only to show the absorption, leaving the rest pure for comparison. To photographers, of great interest will be the testing of various dark-room media, such as ruby and orange glass, or ruby and canary medium, and also the action of the coloured screens as used in orthochromatic work. For ordinary purposes we may use tanks of liquids, but as these are a little troublesome, it is far better to make a solution to cut out any given colour, and then allow about twenty grains of good gelatine, such as Heinrich's, to swell in the solution, and melt the same by the application of a gentle heat. Glass plates—old half or whole plate negative glasses will do—being well cleaned, should be waxed, and then the gelatine solution poured thickly on the same and allowed to set in a level place and dried; when dry, the gelatine may be cut round the edges and stripped, and the film then cut into strips, and by placing a strip over half the slit as described above, it will show the absorption of colour, and the further effect of increasing the colour may be shown by placing two or more thicknesses. Thus to show the absorption of red we may use a solution of malachite green, for yellow a solution of aniline blue, and for violet and blue a solution of aniline yellow and chrysoidine or an ammoniacal solution of carmine.

Composite colours are best shown by using a biunial or triunial lantern with tanks, and using solutions. Thus with a biunial and tanks, one filled with bichromate of potash and the other with sulphate of copper, and making the discs coincide, one obtains, not green, but white light. Lord Rayleigh has suggested the use of gelatine stained deep blue with litmus, the other with aurine; when superimposed we get pure yellow, as the litmus stops out yellow and red, the aurine stops out the blue and violet, so that the two absorb all colours but green and red, which when mixed produce yellow, and this yellow when analysed by a prism gives merely red and green.

Compressed Gas. Both oxygen and hydrogen gas, in a compressed or condensed form, and stored in metal cylinders, have been used for the production of the limelight for many years past, but it was not until Brin's Oxygen Co., Ltd., which was formed to work a modification and improvement of Boussingault's process for the extraction of oxygen from the atmosphere, was established, and the price originally charged reduced to less than one-half, that the system began to find much favour with lanternists. Not only was the method of making the gas improved, but the cylinders in which it was contained were greatly improved also. Under the old system the bottles were only charged to a pressure of ten atmospheres, and a bottle to contain ten feet of gas would be nearly two feet in length and would weigh about 40lb. Under these conditions the system did not find much support, but simultaneously with the introduction of Brin's process came the seamless steel bottles, and the welded, now so familiar to all lanternists, lighter, stronger, and in every way more convenient than their predecessors. In these the gas is under a pressure (in a fully charged cylinder) of 120 atmospheres, and as an instance of their portability, the dimensions of one to contain twelve feet of gas are 20 inches long by 4 inches diameter, and its weight about 14lb. Apart from the bulk and weight of the old iron bottles, the low pressure at which they were charged gave rise to a certain amount of inconvenience in working, the constantly failing pressure necessitating a frequent readjustment of the valve of the bottle, making it difficult and troublesome to maintain a good light with a mixing jet. Although for some time after its introduction a few skilled lanternists resolutely set their faces against the employment of compressed gas, its use may now be said to be almost universal, and to find an experienced operator using bags, except in a case of emergency, is an exceedingly rare occurrence at the present time. Not only is the trouble of making the gas obviated, but the possibility of an accident occurring is practically reduced to a minimum. An explosion of a cylinder whilst in use has, we believe, never occurred, and the only possible chance of such an event happening would be by the accidental admixture of the two gases in one bottle by the compressors. This has in the past unfortunately occurred upon one or two occasions, but the danger, fortunately for the ordinary consumer, manifested itself before the cylinder left the works. The adoption of such precautions as the use of right and left handed screw fittings for the respective gas bottles, the painting of each cylinder of a distinctive colour, black for oxygen and red for hydrogen, and the practice of emptying all cylinders before recharging, has practically removed every possibility of danger to the consumer.

Compressed Gas—Management of. The manipulation of compressed gas presents no difficulty. With ordinary care and intelligence, a blow-through or spirit jet may be worked satisfactorily direct from the bottle, but the pressure must be regulated by the cylinder valve, and not by the jet tap. The necessity for so doing was forcibly brought to the writers' attention when using for the first time a cylinder of compressed gas obtained from Brin's soon after the starting of the company. The light had been adjusted and everything appeared to be working satisfactorily, when his hand happened to come in contact with what felt like a huge German sausage, but which was in reality the distended delivery tube. A frantic rush was made for the cylinder key, and the gas was fortunately turned off before the india-rubber tube burst. To avoid the possibility of this mishap occurring, it is better, when working without the intervention of a regulator, not to tie the tubing either to the jet or to the nipple of the bottle; the tube, in the event of undue pressure, would then blow off without the danger of its ripping to pieces and striking the face of the operator. It is, however, more convenient to use a regulator, the manipulation of the gas then presenting no more difficulty than when using bags, and the pressure being more uniform. There are several regulators in use at the present time, including Beard's, Brier's, and Clarkson's. The latter is in external appearance like a miniature gas-bag, and answers very well for a single lantern. In both Brier's and Beard's regulators the mechanism is enclosed in a metal chamber; either of the latter may be used for a single, double, or triple lantern. [*For further description see "Regulator."*] The regulator is screwed firmly to the cylinder; if this be not attended to, leakage will probably occur, and consequently a waste and loss of gas. The cylinder should be tied to a table leg or laid on the floor, or at any rate so secured that it cannot be knocked over during an exhibition. Convenient cases are now supplied by the trade which support the cylinders vertically. The jet and the delivery tube of the regulator should be connected with a piece of india-rubber tube. The jet tap must at this stage be turned *off*, for if allowed to remain open the regulator would not act. The gas is then turned on slowly at the cylinder valve, when the adjustment of the light can be proceeded with. Care should be taken never to apply oil or grease of any kind to cylinder valve, regulator, or gauge fittings, for obvious reasons, and the regulator should be always kept in its own box when not attached to the bottle, so as to avoid the possibility of its becoming choked with particles of dirt or dust.

(*To be continued.*)

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CENTRAL PHOTOGRAPHIC CLUB,

FLEET LANE, LUDGATE CIRCUS.

HON. TREASURER: John Howson, "Brockenhurst," Ilford, E. Executive Committee: Birt Acres, R. Beckett, T. Bedding, Austin Edwards, Thomas Fall, T. E. Freshwater, John A. Hodges, E. J. Wall, H. Snowden Ward.

The want of a photographic club and institute with a permanent home in a central position in London, and easily accessible from the principal railway termini and by the chief omnibus routes, has been for some time felt, and after several private meetings of gentlemen interested in the matter, two public meetings have been held and it has been decided to at once supply the deficiency.

Numerous premises have been seen and reported upon by the executive appointed at the first public meeting, and it is proposed, and negotiations are on foot to secure premises at the above address, consisting of basement, ground, first and second floor, at what is considered a very reasonable rent. In the basement twelve dark rooms could be fitted up and leave sufficient space for setting up apparatus for enlarging by artificial light. The room on the first floor, after structural alterations, will be sufficiently large to seat 230 persons. It is also proposed to provide a smoking room and library, and other club conveniences.

It is proposed at first to utilise the refreshment rooms in the Memorial Hall Buildings, with which communications will be made. The excellence of the usual catering and the moderate charges, have, after actual experience, been highly spoken of. This arrangement will be terminable at any time and the Club Committee can take the supply of refreshments entirely into their own hands.

While the social element will be a strong feature in the proposed club, technical photographic meetings, demonstrations, lantern entertainments, exhibitions of pictures, apparatus, etc., will be held at stated times.

All gentlemen interested in photography will be eligible for membership.

The subscription for town members, *i.e.*, those residing within twenty miles of the club, will be £1 1s. per annum, and for country members 10s. 6d. per annum. The first 500 applicants will be admitted to membership without payment of an entrance fee, which has been fixed at £1 1s. for town members, and 10s. 6d. for country members. About 250 applications for membership have been received.

Life members will be admitted on payment of £10 10s.

A number of rules drawn up and published in the photographic journals for the week ending April 15th, 1893, were adopted at the public meeting held on the following Monday.

It is anticipated that the club will be opened early in July next, when a working committee will be appointed and the necessary bye-laws and regulations drawn up. Every effort will be made to make the club a home, a rendezvous and resort for all those interested in photography, whether residing in London or in the country, and a representative force in each of the many branches of modern photography.

We shall be pleased to receive applications for membership, and will, on application, furnish any further information that may be desired.

It is proposed to form a Limited Liability Company, with a capital not exceeding £1,000, divided into £5 shares, of which £2 10s. will be payable on application; to take the lease of the premises and to furnish and fit up the same for the use of the club.

It is particularly pointed out that all who are interested in the advancement of photography should take shares to assist in placing this cosmopolitan and much needed club on a sound basis.

We shall be pleased to hear from anyone as to taking shares, and will forward a prospectus on hearing from them.

W. FENTON-JONES, Hon. Sec. Hackney Photo. Society,
12, King Edward Road, Hackney, N.E.
CHAS. H. OAKDEN, Hon. Sec. South London Phot. Soc., 51, Melbourne Grove, East Dulwich, S.E.
Joint Hon. Secs.

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Our Town Traveller.

W. WATSON & SONS, 313, HIGH HOLBORN, W.C.

As is well known, the habitat of this firm is within one door of Chancery Lane, and, hearing of a new hand camera, our town traveller called last week to inspect the same, and took the opportunity offered of a show round the factory.

On the opposite side of Holborn is a narrow court, Fulwood's Rents, a neighbourhood well known to Dickens; here time and civilisation have begun their march, and the old tumble-down houses have given way to commodious factories where the Acme camera and other specialities of this firm are made. Here we find steam saws buzzing away and singing their way through rough mahogany planks, and turning out unceasingly little bits of wood which, when fined and polished, make cameras and dark slides of all sizes. Next to the saw room is the brass-workers' room, where file and rasp make a running accompaniment to their neighbours the saws. We pick up little bits of camera fittings, studio and ordinary stands in all states, from the rough pipe or casting to the highly polished and finished fitting. Thence to the joiners' room, where chaos and confusion of woodwork are reduced to cameras and dark slides. Further on we find here the fining or preparing of the finished parts, and here it is where extreme care and nicety is required, for every part of a camera has to fit, and fit accurately, not too loose nor too tight, gun-metal patterns. The great advantage of thus having every part of the camera and every dark slide made to standard sizes is readily appreciable to every one, for we may have occasion to buy new slides, or replace a front, or even borrow the same from a friend or acquaintance, and this one may do if the apparatus has been made by this firm.

French polishing is always one of those arts which puzzle an amateur, but here in a very brief time we see a polish like ivory itself put upon woodwork and the figuring brought up to perfection.

Finally we examine afresh one of the now famous Acme cameras, which has been slightly improved. One of these is shown extended and also closed in the accompanying diagrams.

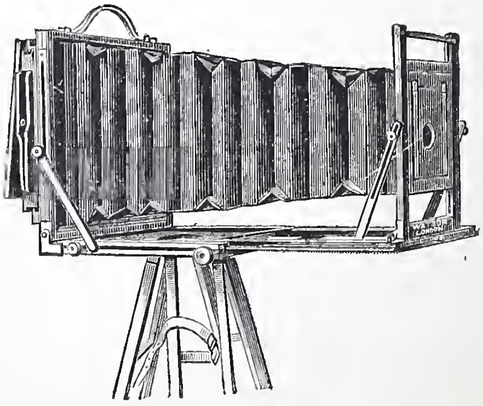

FIG. 1.

Taking the half-plate, this extends to 15 in., and closed up to about 2 in. The back slides forward for use with wide angle lenses, and with all the necessary movements of swing-back, rising front, etc., it is a perfect combination of compactness, portability, and lightness. The dark slides are fitted with patent stops and improved flexible hinges, the joints of which overlap, and thus form a further protection against light.

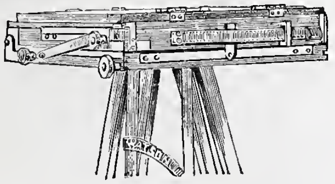

FIG. 2.

In conjunction with an Acme camera should be used a Cyclist stand, which is another of the excellent manufactures of this firm. The studio stand figured in the accompanying diagram is also worthy of notice, special movements of the top being effected by the handle at the back, so that it can be raised or lowered, or canted up or down, to suit the requirements of the work.

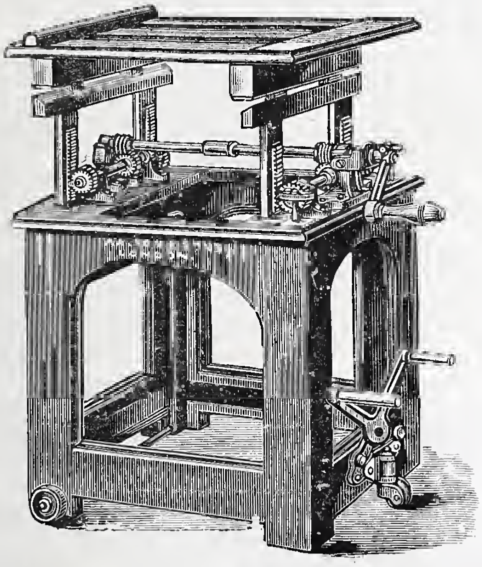

FIG. 3.

The Genie hand-camera, which is this firm's latest novelty, is designed for twelve plates or twenty-four films, and is very small and neat in appearance, covered in black leather. It is adapted for use either as a hand-camera or on the stand. It is fitted with a rapid rectilinear working at $f/8$, with three diaphragms and a special shutter working between the lenses. A focussing disc is fitted at the side of the camera, as shown in fig. 6, which also shows how it is possible to do without a cloth. The plates or films are inserted in special carriers which are then placed in a brass magazine, which is inserted in the back of the camera and locked into position by a lock button. To change the plates or films, it is merely necessary to open a little door, and gently pull out the inner case of the magazine, when the exposed plate falls to the bottom of the magazine, and the case is then pushed home again, and we are ready for another exposure. A safety door is provided as a special secondary protection against light, and is released on pressing a knob. The Genie camera is one of the smallest and lightest cameras we have seen; it has two finders, a good lens, an adjustable shutter with safety shield, so that the shutter may be set without admitting the light. The changing is simple and not likely to get out of order, and the camera may be used for time and instantaneous work. The price is reasonable, £8 15s.

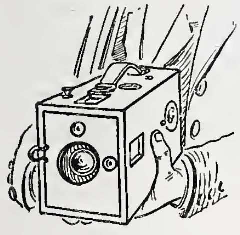

FIG. 4.

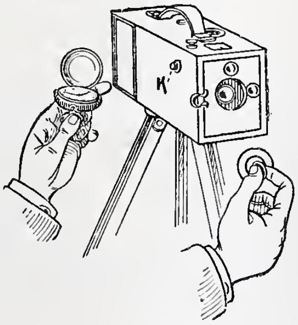

FIG. 5.

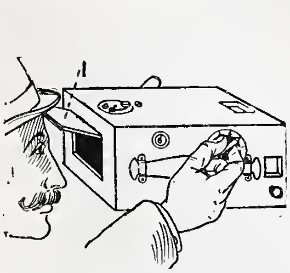

FIG. 6.

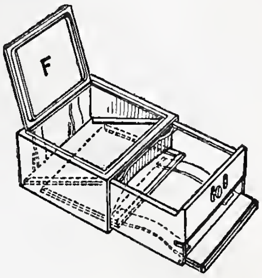

FIG. 7.

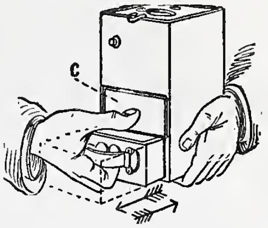

FIG. 8.

After having a general look round, the optical department next claimed our attention. There we found photographic and microscopic objectives in all stages of preparation, and stopped for a few moments to see the operation of grinding little lenses not more than a quarter inch in diameter.

A final examination of optical lanterns engaged our attention, and in this department, as in camera-making, extreme perfection and care of working is to be noted, also well-seasoned wood, good fitting, and careful construction. We here saw a new jet clamp, which is a grand improvement; a stout, grooved steel pillar works in a brass socket attached to the back of the lantern, and the jet is moved up and down by a milled head actuating a rack working in the grooved pillar; this is at the side of the lantern. A lateral motion of the jet is easily attained by merely a half or quarter revolution of the pillar, and the correct centring of the jet having once been found, it is instantly clamped into position by the turn of a milled head. The action of this clamp is certain and easy without any complications, and it will be found a vast improvement on the old method of clamping and altering the position of jets.

We can hardly mention everything that we saw, for Messrs. Watson are dealers in every photographic requisite, from the simplest to the most expensive article. They are special agents too for the Diazotype process materials, which has not received the attention it deserves, as it affords a simple and interesting method of decorating our homes, and we commend this and the other specialities of this firm to our readers' notice.

* * *

West Kirby.—The first excursion was held on 6th inst. to Thurstaston. The church and Thurstaston Hall, with sundry tree and cottage studies, kept all cameras busy until the light began to fail. Sir D. Radcliffe very hospitably entertained the party to tea, which concluded a most enjoyable afternoon. The next excursion is to Burton (two miles from Hadlow Road station) on the 20th May.

Rochester.—The last meeting of their winter session was held on the 29th ult. On the evening of the 25th ult. the 1892 prize lantern slides kindly lent by the editor of the *Hand Camera and Lantern Review* were exhibited. They were some of the best the club had seen during the winter session, and were highly appreciated. On the 29th ult. the "Peak and Dale" slides from the Editor of the AMATEUR PHOTOGRAPHER were shown (the 1892 prize slides being lost in transit from some other club during the week). These slides, with the readings explaining them, show the beautiful scenery as well as the principal mansions in the county of Derby, and as lantern slides are all that can be desired. The members of the photographic section will not meet again until the 18th October, when there will be an exhibition of the work of the members, but in the meantime they will make fortnightly Saturday excursions with the club, beginning on the 13th inst.

Exhibitions.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

THE annual exhibition was opened on the 9th inst. The number of exhibits is about the same as last year, but there appear to be rather more exhibitors. Several of the classes contain duplicates of views taken in connection with the Warwickshire Photographic Survey, which, by the way, is now on the eve of completion, and there are, of course, the various pictures which were sent to the Crystal Palace Show. In instantaneous work there is nothing specially noticeable, the silver medal falling to Mr. William Rooke for a Christiana street scene of a rather ordinary kind, and Mr. J. P. Heaton, Mr. H. W. Southall, and Mr. T. Taylor (Staffordshire), all receiving honourable mention. The photographing of clouds is growing in popularity, but it may be questioned whether in many cases their reproduction, apart from any reference to terrestrial objects, is very artistic or pleasing. Mr. J. Simkins is here the medallist, and Mr. J. H. B. Manly is honourably mentioned. The landscapes are interesting, and Mr. H. W. Southall carries off the chief award with a clever little bit of work—Chadbury Mill. Mr. W. Jones is deservedly the medallist for enlargements, though his "Cross, Henley-in-Arden" has a dangerous rival in his own "Bildwas Abbey." Portraiture, in which, it must be confessed, amateurs seldom shine, shows some progress, the silver cup going to Mr. Leeson, though the competition is good in this section. Mr. J. Simkins is the medallist for interior work, his successful exhibit being the tomb of Sir Fulke Greville, in Alcester Church; but there is not much to choose between it and several other efforts, two more of his own, indeed, securing honourable mention, an award which falls to two productions of Mr. G. F. Lyndon, and to one to Mr. W. T. Greatbach. Mr. Simkins is again the medallist for exterior architectural work with a view of the Chapter House, Much Wenlock. He is also honourably mentioned, as is Mr. C. J. Fowler. Genre work is good, Mr. C. J. Fowler obtaining the chief award, and Mr. Southall being mentioned. On the other hand, hand-camera work is poor, and there are only three exhibitors. Surely six good prints is not too much for even a hand-camera photographer to collect in a season. Consequently there is no award; nor is the silver medal awarded in the animal class, which is comparatively poor, the "Prize Hunter" of Mr. T. Taylor (of Moseley) certainly deserving no more than honourable mention. The seascape exhibits are moderately interesting, Mr. A. J. Leeson being the medallist; while the flower section produces one of the gems of the exhibition, a photograph of the *hesperis matronalis alba plena* by Mr. J. Simkins. Mr. E. Winn and Mr. J. H. Pickard are both honourably mentioned. Mr. M. H. Chubb is the successful exhibitor both in the champion class, and in that for three prints, any subjects, any size. His "Nydia" in the champion class, and his "Andromache" and "Hiawatha" in the other section can scarcely be styled either artistic or poetical. His third print, "Day Dreams," does, however, deserve praise. Mr. T. Taylor takes the bronze medal for the third award in the champion class, the second not being allotted; while Mr. H. C. Manton takes the corresponding prize in the class for any three prints, Messrs. W. S. Aston and C. H. Barnsley being honourably mentioned. Mr. William Rooke takes the silver medal in the section for photographs no t included in the above classes, with a hoarfrost picture; Messrs. J. Simkins, P. T. Deakin, and W. Topham are mentioned. Mr. H. W. Southall is the medallist for bromide prints, with a view of the Avon at Cropthorne. Mr. E. C. Middleton is successful in the class in the survey section for three doorways in Warwickshire; and Mr. E. Underwood, who alone seems to have understood the object of the class, the medallist for a nonagenarian in "Warwickshire Peasantry." The last-named gentleman is also successful in another open class in the survey section; while Mr. Middleton obtains a second medal for a capital view of Stretton-on-Fosse, in "Characteristic Village Scenes." The medal for church windows is not awarded. Last, but not least, comes Mr. J. H. Pickard, with the medal and two (the only) honourable mentions in the class for architectural details. His "Oak Gate to Staircase at Peddimore Hall" is another gem of the exhibition; while his view of the recently-discovered secret room at Middleton Hall is not much inferior to it. It only needs to be stated that Mr. E. C. Middleton adds one more to his successes by securing a medal for lantern-slides, that some excellent work is sent "not for competition," and that exhibitions were given with the optical lantern each evening until the exhibition closed on Friday.

* * *

Hurst's Electric Dark-room Lamp.—In our notice of this novelty last week, we should have stated that it will last for about twenty, not thirty, consecutive hours, and the price is £3 10s. Continued use of it during this last week has only confirmed our good opinion of it.

Societies' Notes.

A MEETING was held in Wood Green on the 6th inst. to consider the advisability of forming an association of those interested in photography and other scientific pursuits. Mr. J. G. Robins was called upon to take the chair, and, in his opening remarks, made allusion to the fact that no such association existed in the district, and that the promoters hoped by including any or all of the natural sciences with which photography is more or less connected, that they would be enabled to establish an association upon a much more comprehensive and satisfactory basis than by confining its scope to photography alone. After the Chairman had concluded his statement, there ensued a lively discussion in which many of those present appeared to take the greatest interest. It was unanimously agreed that a provisional committee be appointed, with power to add to their number, to make all the necessary arrangements for the formation of such an association, and twenty-one gentlemen at once undertook the duties in question. It is proposed that the association may be utilised by those wishing instruction in photography, and that under its auspices, during the season, there will be a course of popular lectures delivered by gentlemen of eminence in their respective branches of science. Several having already promised to forward the interests of the association in this way. It was unanimously agreed that ladies be admitted as members, and that another public meeting should be held at an early date to hear the Committee's report. Before the meeting separated forty-nine names were given in to the honorary secretary. Ladies and gentlemen desirous of joining the association are requested to communicate with Mr. P. D. Coghill, 252, Wightman Road, Hornsey, or with the Hon. Sec., A. S. Murrow, 32, Park Avenue, Wood Green.

* * *

NORTH MIDDLESEX.—The fourth of the series of Elementary Technical classes given by the above Society was held on Wednesday 10th inst. the subject being "Intensification and Reduction of Negatives," by Mr. J. McIntosh." Several of the negatives brought by those interested were operated upon with excellent results, formulæ given and the processes explained in a manner suitable for beginners. These classes have been greatly appreciated, and the interest shown by both instructor and those gentlemen attending is evidenced by the great improvement made in some of the work lately exhibited at the society's outings competitions.

* * *

THE WEST LONDON PHOTOGRAPHIC SOCIETY held its annual dinner on 9th inst. at Frascati's Restaurant, Oxford Street. The President, Mr. J.A. Hodges in the chair, was faced by the Challenge Cup won by this Society at the recent Crystal Palace exhibition. Various toasts were responded to, Mr. William England replying on behalf of "Kindred Societies," Mr. T. Bedding and Mr. E. J. Wall for "The Press," and Mr. T. R. Dallmeyer for "The Visitors." Vocal and instrumental music was given at intervals of the evening, and a flash-light exposure of the company was made beforehand.

Societies' Meetings.

Belfast Y.M.C.A.—The annual meeting was held on 12th inst., Mr. Wm. Swanston, F.G.S., in the chair. The annual report submitted by Secretary showed the affairs of the club to be in a satisfactory condition, an encouraging feature being the large increase in the membership during the past twelve months. The financial statement was also read showing a balance to the credit. The Monthly Competitions for prints and lantern-slides held throughout the year were a great success, Mr. J. A. Pollock securing the yearly championship of the club. Meetings, at which practical demonstrations will be given by members, will be held during the summer. The excursion programme was arranged for. An exhibition will be held during the ensuing autumn. The following office-bearers were appointed for the year:—Wm. Swanston, President; W. J. D. Walker and Wm. Strain, Vice-Presidents; Committee, T. F. Bell, J. E. Pim, F. B. Scott, J. A. Pollock, A. R. Hogg, and A. George; Secretary and Treasurer, James McCleery, 14, Wellington Place, Belfast.

Darlington.—The usual meeting was held on 8th inst., in the clubroom, Mechanics' Institute. A number of photographic hints and suggestions were read and discussed. Messrs. Taylor, Taylor, and Hobson's new lens fittings were exhibited and much admired.

Eastbourne.—First out-door meeting on 10th inst. to Hurstmonceux was a great success, nearly thirty members attending. The old Castle was literally bombarded on all sides by energetic members; in fact, it often occurred that one member had to wait until another had finished, and it was no infrequent sight to see two or three members all taking the same view simultaneously. After a good tea we started the drive home, and a most enjoyable outing

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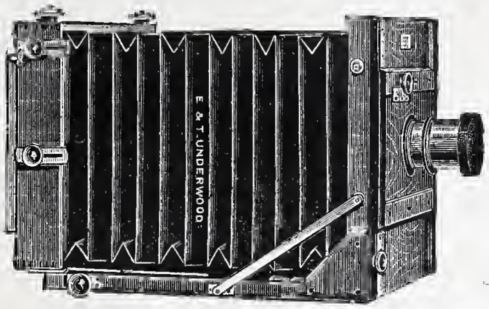

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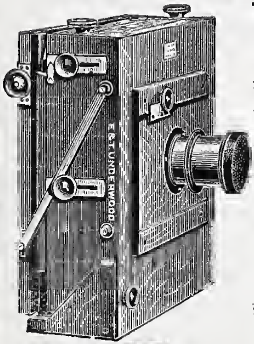

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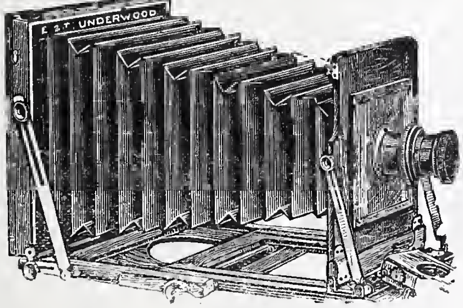

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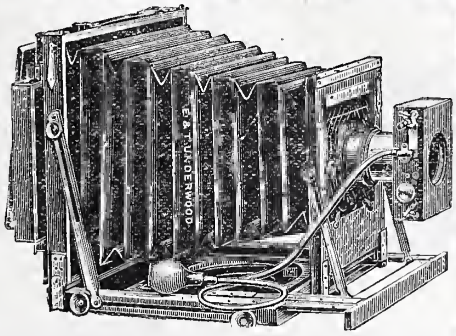

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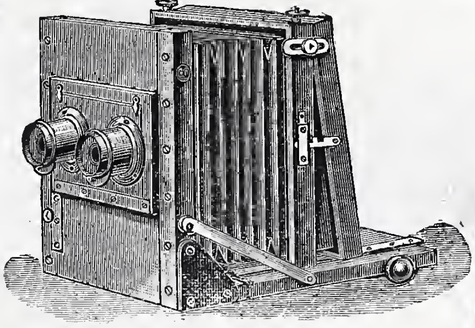

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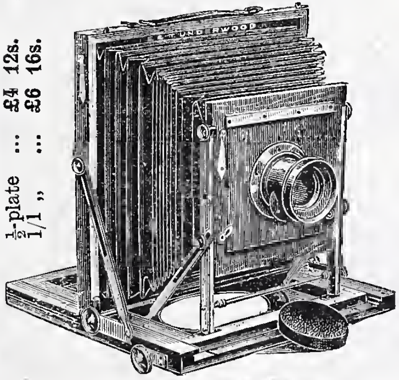

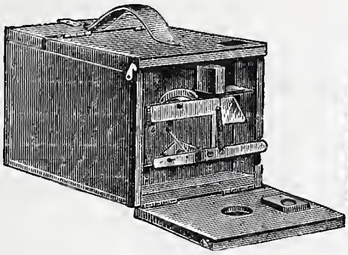

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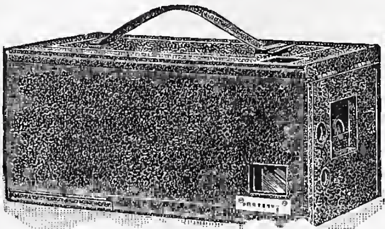

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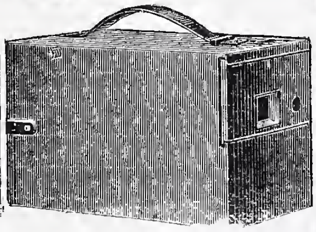

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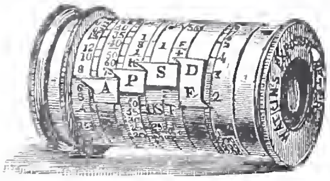

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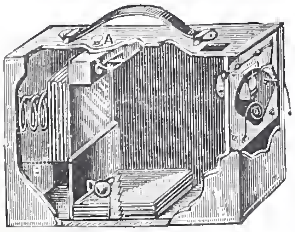

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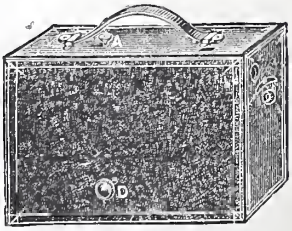

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was finished. The prints in this outing and the one on the 31st inst. are allowed to enter a competition, instituted by the committee, for two prizes, value respectively £1 1s. and 10s. 6d.

Hackney.—Ordinary meeting held 9th, Mr. T. H. Smith in the chair. Mr. Maxwell was elected member. Mr. Hensler said he had broken his focussing glass when in New Zealand, but as he had previously marked his camera in distances the difficulty was overcome. Mr. Beckett advised using a xylonite film (which would not easily break), but said in having distances scaled as mentioned the trouble was getting the principal focus, *i.e.*, foreground or distance. Mr. Grant used, on emergency, a plate put in hypo till nearly clear, then washed out. Mr. Hudson protected his focussing screen by using a piece of thin wood. From the question-box: "What can be done with a hydroquinone formula (Ilford), in which crystals had not dissolved?" Mr. Roofe had had markings on his plates under such circumstances. Some discussion ensued, but filtering was eventually recommended. Another question was asked: "Was it necessary to rock during development?" The reply was: "Yes, as particles might cause stains, and mottled appearance would sometimes result." Mr. Hensler asked for amidol formula for lantern plates, and was recommended by Mr. S. T. Beckett to use amidol with plenty of bromide. Mr. Grant asked for probable exposure for ordinary room? Several replies were given, but *f*/22, Sandell plate, ten minutes, was mostly favoured. Mr. A. Barker asked, were uranium-toned prints permanent? Mr. S. Beckett said it was doubtful. He thought that if developed in the first instance with ferrous oxalate it would deteriorate. Mr. Sodeau startled the society with showing a shilling hand-camera. He proceeded to explain it worked at *f*/22 amidst much mirth, and numerous questions were asked of a hilarious kind. Mr. T. H. Smith asked what plates were best to use for cloud negatives? Mr. Hensler had used Iso. Mr. R. Beckett said they were good when there is a yellow sunset, but for a bright blue sky the yellow screen should be used. He made an exposure last week on a Barnet rapid *f*/18, 1-40th sec., and had a good result. Clouds, he said, were often printed in too deeply; what was wanted was delicate, not hard, clouds. Mr. Cross showed print from cloud negative, the negative of which he had taken by cap exposure, using slow plate and developer weak in alkali.

Halifax.—In connection with the above Club a photographic excursion to Bolton Woods took place on the 4th inst. About fourteen members and their friends spent a pleasant and enjoyable time in visiting and photographing the various points of interest in the district, the weather being everything that could be desired. On reaching the woods the party dispersed in small detachments at pleasure. Various styles and sizes of camera were employed, and a goodly number of plates and films exposed, the results of which are expected to be shown at a subsequent meeting.

Kensington and Bayswater.—A meeting was held, Mr. C. W. Brumwell presiding. Several of the members and their friends gave an enjoyable entertainment, consisting of songs and instrumental music.

Leytonstone (Camera Club).—Ordinary meeting on the 10th inst., Mr. H. E. Farmer in the chair. The advantage of the multiple film known as the Sandell plate was demonstrated by Mr. Herbert Fry. The lecturer opened by passing round some very fine prints produced by Mr. Sandell. The exposure given evidently showed that the inventor had put the plates to some very severe tests; their advantages over other plates for hand-camera work was clearly shown, and explained, some very fine snapshot negatives being passed round, the clouds having been retained in the second film. Mr. Fry classified the advantages of the multiple film in the following order, although he considered that No. 4 was the most important:—1st, "hand-camera work," in which the top film, being rapid, allowed for slight under-exposure, the second film absorbing the high lights and preserving the picture in over-exposure. 2nd, "interior work," in which the top film takes up the shadows and the second the high lights. 3rd, "halation:" they almost entirely do away with this bugbear, as the under films catch the rays of light, and being a very slow emulsion with a medium exposure they are retained, but even if very considerably over-exposed and have penetrated right through the film, they still have to be reflected back through this slow emulsion. 4th, "gradation:" the double film gives a much longer scale of the various tones and half tones compared with the resulting flatness of the single film. 5th, "exposure:" the enormous amount of latitude allowable, in fact the best results were to be obtained with extended exposure and weak development. The developer recommended was that known as Cyclol, consisting of hydroquinone, 30 gr.; eikonogen, 100 gr.; Rodinal, 9 drm.; sulphite soda, 2½ oz.; carb. potass., 2½ oz.; water, 20 oz. In winter to be used 1 to 3, and in summer 1 to 7. The Hon. Sec. asked the question as to what extent development should be carried, as he had found that when developing with pyro ammonia the top film veils over and the back had to be watched as to the progress. The Chairman said he had had the same difficulty. Mr. Fry, in reply, said that the developer had been used too strong, and that by tentative development they should come up as an ordinary film, but required a strong fixing bath, 8 oz. hypo to the pint.

Lincoln.—On the 13th inst., under the leadership of Mr. R. Slingsby, about twenty ladies and gentlemen had their first outdoor of the season (by the kind permission of the Right Rev. the Lord Bishop of Lincoln) in the grounds of the old palace. The party met at 2.30, and at once set to work in earnest, and many excellent pictures were secured. After spending a very pleasant afternoon the company separated about five o'clock. The next meeting is to take place on the 31st inst.

Liverpool Camera Club.—The usual fortnightly meeting was held on 10th inst., Mr. A. C. Yule, Vice-President, in the chair. The President, Mr. J. Hawkins, gave a lecture and demonstration on enlargements. Several enlargements were very successfully made from half-plate negatives, "Amidol being the developer used, the lecturer recommending this in preference to others, there being in his opinion less liability of the shadows clouding over. The usual votes of thanks terminated the proceedings.

P.S.G.B.—Ordinary meeting held on the 9th, the President, Capt. W. de W. Abney, C.B., R.E., in the chair. It was announced that the Brixton and Clapham Camera Club had been affiliated. Capt. A. M. Mantell, R.E., read a paper entitled "On the Use of Tinfoil as a support for Photo-lithographic Transfers." Mr. Leon Warnerke suggested the use of silver foil for the purpose, which he had found most suitable in another photo-mechanical process, and which was easily obtainable commercially. Mr. T. Bolas inquired whether the foil could be used for re-transfers from the stone. Capt. Mantell stated that it could, having the advantage of the absence of distortion, but at the same time it was awkward to keep. Capt. Abney stated that some twelve years ago tinfoil was employed at Chatham, the results of which were very satisfactory, but there was great difficulty in obtaining suitable foil, which difficulty Capt. Mantell had evidently overcome. He congratulated the latter on having retained the services of Mr. Husband at Chatham. There was one point upon which he (Capt. Abney) was at total variance with Capt. Mantell, and that was that a process block was not required for military work. In his opinion it was of the greatest use. A paper was then read by Capt. Abney "Upon some Uses of a Moving Sensitive Surface. Amongst the applications of such an instrument were the measurement of the speed and efficiency of shutters, the measurement of the duration of a flash lamp, the comparison of the photographic intensities of sun and candle light, etc. Mr. G. L. Addenbrooke gave some description of an instrument which he described before the Photographic Society some ten years ago for the measurement of the speed of shutters. Capt. Abney pointed out that such an instrument was not of any use for measuring the efficiency of the shutter, nor for performing the other operations which he had enumerated.

Rotherham.—On 10th inst., before a good assemblage of members, Mr. T. Scotton, of Derby, read a paper on the platinotype process, and afterwards developed a number of whole-plate prints by the cold-bath method. The demonstration was most successful, and the resulting pictures were much admired for their artistic as well as their technical excellence. Dr. Baldwin (President) occupied the chair. On Tuesday the 2nd inst., the members had under their notice Dr. P. Jeserich's "detection of crime" paper.

South London.—Ordinary meeting on the 1st inst., the President, Mr. F. W. Edwards, in the chair. At the close of the ordinary routine business, Mr. S. Herbert Fry delivered an address on "multiple-coated plates, during the course of which he gave a minute description of the peculiarities of the Sandell plate and the treatment of it. For development he recommended Messrs. Thomas and Co.'s "Cyclol" developer, compounded as follows:—Hydroquinone, 30 grains; eikonogen, 100 grains; rodinal, 9 drachms; sulphite of soda, 2½ oz; carbonate of potash, 2½ oz.; water, 20 oz. Use one part to seven parts of water in the summer, and in the winter time one part to three parts of water. The fixing-bath should be as strong as 8 oz. of hypo to a pint of water. A longer time should be allowed for the fixing and the washing of the plates, owing to the thickness of the coating. Mr. Fry in conclusion claimed the following advantages for the Sandell plate: (1) Special merits for hand-camera work; (2) peculiar fitness for indoor work; (3) a practical cure for halation; (4) a better atmospheric effect and a longer range of gradation; (5) exposure is practically unimportant. Examples of work were passed round and examined. A question was asked, what is the best background for photographing flowers for lantern slides? It was answered, a black velvet brown paper, or a dark-coloured plain background. Two new members were elected, and five nominations were read.

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The Lomberg Plate.—Stiepel and Co., the wholesale agents for the above, will be pleased to forward a sample of two half-plates on receipt of stamp from any amateur or professional.

SOCIETIES' FIXTURES.

May 18—Aston.—"Colouring Photographs," Mr. W. Neville.
,, 18—Harringay.—Lantern Slides.
,, 19—Holborn (Camera Club).—Mr. Fred. Brocas will open a Discussion on the Best Method of Toning and Finishing Gelatino-Chloride Prints.
,, 19—Croydon.—Horsham Excursion Work.
,, 19—Lewisham (Camera Club).—Demonstration of the Sandell Plates, Mr. H. S. Fry.
,, 20—Bristol.—Excursion to Backwell and Church.
,, 20—Ashton-under-Lyne.—Outing to Belle Vue. Leader, Mr. T. Cheyne.
,, 20—Leytonstone (Camera Club).—Excursion to Wanstead Park and Flats. Leader, Mr. G. D. Riddick.
,, 20—Birmingham.—Half-day Excursion to Alcester. Leader, J. Simkins.
,, 22—Richmond.—Bank Holiday Excursion to Warwick.
,, 22—Croydon (Camera Club).—Whole Day Outing to Stoke. Conductor, Mr. W. H. Hope.
,, 22—South London.—Excursion to Gomshall.
,, 22—Photographic Club.—Excursion to Burnham Beeches and Stoke Pogis.
,, 22—Croydon.—General Excursion (all day) to Caterham, Godstone, and Oxted. Conductor, Mr. Lovett.
,, 22—Liverpool (Camera Club).—Excursion to Gresford. Leader, Mr. Brown.
,, 23—East London.—Debate upon Prize Negatives, opened by Mr. Wickenson.
,, 23—Birmingham.—A Discussion will be opened by Messrs. J. T. Mousley and E. H. Jaques upon the Best Styles and Methods of Mounting Photographic Prints.
,, 23—Hackney.—Hand-camera Night.
,, 23—P.S.G.B.—Technical Meeting. "The Daguerreotype Process," a Demonstration by Mr. W. England.
,, 24—Paisley.—Excursion to Ailsa Craig.
,, 24—Croydon (Camera Club).—Conversazione, 9 p.m.
,, 24—Leytonstone (Camera Club).—Demonstration, "Reproducing Negatives," by Mr. Alfred J. Newton. Chair taken at 8 o'clock.
,, 24—Photographic Club.—"Halation, its Cause and Cure."
,, 24—Liverpool.—Ordinary Meeting.
,, 25—Dublin (Y.M.C.A.).—"Lantern-slide Making," by Mr. L. Davidson.
,, 25—Liverpool.—Monthly Meeting. Lecture and Demonstration with "Amidol" Development, by Mr. L. E. Morgan.
,, 25—Liverpool (Camera Club).—Excursion to W. Kirby and District.
,, 26—Holborn (Camera Club).—Lantern Night; the Amateur Photographer 1892 Prize Slides.
,, 26—Croydon.—Technical Evening; "A Chat on Spirit Photography." Leader, Mr. Pride.
,, 27—Huddersfield.—"A Search for the Beautiful," by a Novice, with Lantern Illustrations.
,, 27—Bristol (Camera Soc.).—Excursion to Cathedral.
,, 27—Leytonstone (Camera Club).—Outing to Zoological Gardens. Leader, Dr. W. Pickett Turael.
May 27—Croydon.—Excursion to Betchworth and Brockham. Conductor, Mr. A H. Carter.
,, 27—West London.—Excursion to Sudbury.
,, 27—Rochester.—Excursion to Caxton.
,, 27—Hackney.—Excursion to Hampton Court.
,, 27—Staffordshire Potteries.—Excursion to Biddulph and Kaypersley.
,, 27—Lewisham (Camera Club).—Visit to the *Arethusa* and *Chichester* Training Ships. Leader, the Hon. Secretary.
,, 27—Paisley.—Excursion to Eglinton Policies.

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An Easy Method of Determining the Relative Sensitiveness of Photographic Plates.—When a photographer has purchased three brands of plates marked 60, 35 and 26 by their respective makers, he not unnaturally may wish to know which is really the most sensitive. He can readily settle the question to his own satisfaction, however, without any special apparatus, the first clear evening. Let him focus his camera for parallel rays by daylight; the larger and longer focus his lens the better. When night comes on point the camera on the pole star by sighting along its edge, as one might sight a rifle This is necessary, as the stars are in general too faint to be seen upon the ground glass. Care should be taken that in this position the plate remains perpendicular to the axis of the lens, as some cameras are liable to bend when inclined. This difficulty may be overcome by resting the camera upon a board. One should use the full aperture and give an exposure of about ten minutes. On developing numerous stars will be found which are invisible to the naked eye. The stars will all leave trails, forming arcs of concentric circles whose centre lies near the centre of the plate. The plate should be given full development, as nothing will be seen upon it until it is fixed. Since the stars are in constant motion, the intensity of the images is independent of the exposure, which affects only the length of the rails. To obtain a good stellar photograph much more accurate focussing is required than for ordinary views and it may be necessary to take two or three plates, varying the focus slightly in each case, before the best result is obtained. In general a photographer wishes only to know which of several plates is the most rapid. To this end they should be exposed immediately one after the other and then each developed according to the printed directions accompanying the box. The experiment should be repeated two or three times in order to ensure the greatest certainty in the result. The most accurate way of comparing the plates is to cut a circular hole one inch in diameter in a piece of paper and hold it against the back of the plate, so that the pole star shall be in the centre. The pole star may be recognised as a black, somewhat elongated dot near the centre of the concentric arcs. Now, with a pocket magnifier, count all the stars visible through the hole. The plate showing the most stars is the most sensitive. It is well to count them over two or three times, as if there are many it is at first difficult to make them come out twice alike. A difference of five per cent, in the total number of stars shown by two plates would make very little difference in their relative sensitiveness. If it is desired to find out how many times more sensitive one plate is than another one must vary the aperture of the camera lens by paper stops placed in front of it, until the same number of stars are shown in both cases. The relative apertures of the stops then give the rate of sensitiveness of the plates.—*Wm. H Pickering, Prof.* (in the "International Annual of Anthony's Photographic Bulletin").

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

Rules.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer Questions by post.

QUERIES.

6077. **Insufficient Density.**—I have exposed several Thomas' extra rapid and Phœnix half-plates lately, giving from ½ to 2 sec. exposure, *f*/16, and developing with 60 minims pyro, 30 bromide, and 30 ammonia, of 10 per cent. solutions in 2 oz. water. Some have been exposed on landscapes and some portraits. The portraits have turned out all right, but in all the landscapes I cannot get anything like density. If any brother photographer can put me right I shall be very much obliged.—Puzzled.

6078. **Repairing Shutter.**—Can anyone tell me where I could get a new blind put into a Kershaw shutter, and about what it would cost? Any particulars will oblige.—A. B. K.

6079. **Iona and Staffa**—Is there much of photographic interest on these islands, and can accommodation be had on either.—Anon.

6089. **Oban.**—Can Mawson and Castle plates be had here, and if so at what address? Is there a dark-room available, and can any reader recommend a comfortable and reasonable hotel?—Anon.

6081. **Printing from Reversed Negatives.**—Would any brother amateur kindly give me some hints respecting this matter, as I can find nothing about this matter either in Ilford "Manual of Photography" or the "Encyclopedia of Photography." Any hints will be gratefully received by—Provincial.

6082. **Breaking Wave.**—Will any reader kindly tell me what exposure would be required so as to get a breaker (wave) sharp, the breaker being 10 or 12 yards away from sea shore, using whole-plate apparatus?—A. P. S.

6083. **Ventnor.**—Can any reader tell me where I can get good, reasonable lodgings for a fortnight at Ventnor, Shanklin, or Sandown (Ventnor preferred), as on enquiry I find hotels too expensive?—A. P. S.

6084. **Exeter Cathedral and Neighbourhood.**—I shall be glad to have any information as to the experience of any of your readers here as to interior work, exposure, etc.—Wide-angle.

6085. **Printing-in Clouds.**—Can any of your readers tell me how to print-in clouds with the bromide or platinotype process?—E. C. W.

6086. **Developer, etc.**—Will anyone give me a formula for a good and reliable developer, viz., hydroquinone and eikonogen mixed, and the accelerators which they have found most successful with above.—J. Collins.

ANSWERS.

6070. **Whitby Lodgings.**—Good lodgings are somewhat dear in August, but would no doubt be much cheaper in July. There are plenty of them. Hudson Street and John Street are good situations, but have no sea view. Very few houses have a sea view, and these would be more expensive. If "Celluloid" writes to Mr. Robert Gray, County Sale Rooms, Whitby, I believe he will give him any information he requires. I took my lodgings through him.—Clifford E. F. Nash.

6074. **Blackpool.**—Blackpool as a centre for the amateur is very disappointing, the usual seaside pictures, snap-shots, are plentiful, but the country round is flat and uninteresting. Apartments are reasonable; try 27, Bank Street, where I last stayed. —W. H. Worsey.

6063. **Blacking Waterhouse Stops.**—I have selected the following, which is taken from the "Ironmongers' Diary and Text Book," 1885, as it appears to be what "Chum" is seeking: "Black is much used for optical brasswork, and is obtained by coating the brass with a solution of platinum, or with chloride of gold mixed with nitrate of tin. . . . . The best means for producing a black surface on brass, pinchbeck, or silver is said to be platinum chloride, which is allowed to liquify by exposure to the air. It is rubbed in with the finger, or best with the ball of the thumb. . . . . After blacking, the object is washed and polished with oil and leather. Platinum chloride is dear, but a little of it will do a great deal of work. . . . . A solution of nitro-muriate of platinum will blacken brass quicker than anything else; but possibly 2 oz. corrosive sublimate dissolved in 1 quart of vinegar will act quick enough. This solution is brushed over the brass, allowed to remain till the latter is black; it is then wiped off, and the brass cleaned and black-leaded . . . . . make a solution of nitrate of silver in one dish, and of nitrate of copper in another. Mix the two together and plunge the brass into the mixture. Remove and heat the brass evenly until the required degree of dead-blackness is obtained."—W. J. Vasey.

6074. **Blackpool.**—The Brighton of the North stands midway between the estuaries of the rivers Ribble and Wye. The westerly aspect, the prevalence of westerly sea breezes, the high percentage of ozone in the atmosphere, and the protection afforded by the rising ground in the rear against east winds, combine to render Blackpool all that can be desired in point of climate, which is highly bracing and invigorating, and the mean annual temperature is almost equal to that of Hastings. The only place of historical interest is a building in which the Chevalier St. George was hid in 1715, whilst his followers were trying to stir up an insurrection. There are many very fine views round the town, and there is also plenty to see in the immediate neighbourhood. The principal hotels are the Imperial, Claremont, Royal, and Wellington. The prices for lodgings and board at the hotels range from 10s. 6d. upwards per day. The price of lodgings in private houses varies considerably according to situation, and may be stated at from 7s. to 12s. per week for a bedroom, and from 15s. to £2 for sitting-rooms, though even lower prices may be obtained in some of the back streets. Should "H. C. S." wish to secure rooms before his arrival, he can do so by writing to either the *Gazette* or *Herald* offices, as each keeps a directory of apartments to let. Excursions should be made to Lytham, Fleetwood, Southport, and St. Anne's-by-the-Sea. J. Jackson and Son, 61, Talbot Road, and A. P. Garland, 24, Foxall Road, both have dark-rooms as well as a stock of plates, chemicals, paper, etc.—D. H. W. Preedy.

6074. **Blackpool.**—As a holiday resort no town on the Lancashire coast provides more amusements, and your correspondent need have no fear for lack of subjects on which to make exposures. Good apartments (let at reasonable rates) abound on every hand, all classes of visitors having no difficulty in getting accommodation to suit their requirements. Shall be pleased, as a resident, to give "H. C. S." any information desired (photographic or otherwise) on receiving his letter and stamped envelope through the Editor.—Nemo.

QUERIES UNANSWERED.

April 14.—Nos. 6027, 6029, 6030, 6032.
,, 21.—Nos. 6035, 6038, 6040, 6046. 6047.
,, 28,—Nos. 6052, 6053, 6055, 6057, 6059, 6061.
May 5.—Nos. 6064, 6065, 6066, 6067, 6068.
,, 12.—Nos. 6071, 6072, 6073, 6075, 0076.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—Ed. Am. Phot.

Omarius.—Try the metol and soda given on p. 321.

Amateur.—(1) Use medium isochromatic plates, with stop *f*/16, and pale yellow screen, and give about a quarter to one-tenth of a second exposure; develop with amidol or metol, and keep the negatives rather thin. (2) Take a print from the landscape negative, and cut out the sky, allow it to blacken in the light, paint over the back with some non-actinic colour, and adjust carefully on your cloud negative, print in the clouds on the paper, and then, having blocked out your sky on the landscape negative, print in the landscape.

Clio.—(1) You will find that Barnard's little handbook on painting lantern slides, price 1s., will give you all the information you want, but if you turn to page 266, Amateur Photographer, April 21st, you will find an article on the subject. (2) The edges, by which we suppose you mean the outlines of the different colours, are always put in with very fine brushes, and where one colour blends into the other, it is effected by dabbing. (3) Aniline dyes may be suitable for this purpose, but as they are not all stable to light, it is doubtful whether their use is permissible. (4) Intensified slides, if properly treated, will last, but you give no data as to how you work. (5) See answer to 1, or Broodie and Middleton, of Long Acre, have a shilling book on the subject, or Hepworth's "Book of the Lantern," price 3s. 6d., has a very good chapter on it.

F. E. R.—Let them soak in hot solution of washing soda for half an hour, or boil them in the household copper. Then scrub with a hard fibre nail-brush, and finally clean with bichromate of potash and sulphuric acid; rinse, and dry.

Norse.—Letter by post.

Wintersett.—The cause of the central spot is flare. Your diaphragm is in the wrong position, probably. Try unscrewing the lens one or two turns in the mount. The prints are over-developed, and so spoilt by the flare as to render criticism almost impossible.

Failure.—(1) Use water-colours, such as sepia, vandyke, or india ink mixed with a little gum water to spot out the pinholes. It is advisable to varnish the negatives, but do not make the varnish yourself. pinholes and air bubbles can be best avoided by dusting the plates before putting in the developer, and brushing them whilst in the developer. (2) Whilst the prints are squeegeed on the glass mount them with waterproof paper, which can be obtained from almost any dealers, and use a mountant such as Lund's, Houghton's, Butcher's, etc.

J. Faulkner.—We regret that we cannot insert your letter, but if you will ask definite questions we shall be only too pleased to help you.

W. J. Vasey.—Many thanks for answer. The terms for the use of dark-rooms vary a great deal, but it is usual to allow customers, or those who spend money at the dealers to change plates free and to develop at a charge for chemicals only. For those who are not customers the usual charge is 3d. for changing, and 6d. or 1s. per hour for developing. You would find full information in our "Annual."

R. Farmer.—Many thanks. We insert.

J. L. Thompson.—(1) Under-developed, would be improved by intensification with mercury, followed by ferrous oxalate. (2) Slightly under-exposed. (3) Ditto. (4) Ditto. (5) A more brilliant negative could have been obtained by care in developing, (6) Under-developed. (7 and 8) Under-exposed. You are inclined also to under-exposure and then slightly under-developing, so that you get extreme contrasts and black and white negatives, which require extreme care in printing, or they would give harsh prints. They are good negatives for so young a worker. The fog you complain of is halation. Let us know what plates and developer you are using, and then we can make some more suggestions to help you.

Eos.—(1) No, we do not disqualify when competitors have entered other competitions. (2) Both prints are up to competition standard, but the water in *b* is far too white, and there is about an inch too much foreground and an inch too much on right-hand side. Form sent on.

S. D. Chanier.—Letter by post.

W. H. Langton.—Provided a full exposure is given to the plate there is no reason why you should not use ammonia, but with the slightest under-exposure, necessitating forcing or excess of ammonia, green fog will invariably occur.

Kroc.—When using one developer after another, it it is useless to use a detail giver after the density giver. Therefore use Rodinal first, and then hydroquinone.

H. A. Salwey.—You set no mean task. In the first place, to give chemical formulæ means that you must know what you are dealing with, and at the present moment we do not know what the invisible image is. We will, however, think it over, and see what can be done.

R. H. U. E.—(1) To the used baths add hydrochloric acid, 1 drachm, sulphate of iron, ½ oz., to every 5 oz., collect the precipitate, wash, boil with hydrochloric acid, filter, wash filter, and dissolve residue in aquâ regiâ. (2) No; the alum bath is not necessary when using the acid fixing bath. (3) Yes, the one is as good as the other. (4) Probably your hypo solution is too strong and too cold. Replace your ordinary fixing bath with the following:—

Water	1000 parts.
Sodium sulphite	100 ,,

Dissolve and add—

Sulphuric acid.. .. — ..	15 ,,
Chrome alum	90 ,,

Dissolve and add—

Hypo	1000 ,,
Water	3000 ,,

(5) Probably your plates have been kept in an impure atmosphere. Try adding more bromide to the developer. (6) It is better to use a coloured varnish, not water-colour, for your skies; you will then have no difficulty in painting out. If you must use water-colours, varnish your negatives first.

H. Steel.—We think the only way for you to get the negatives you want is to take them yourself. You will never find anybody let you have specimens to show as your own work.

J. B.—We are very sorry, but have forgotten your negative now, so cannot recommend you to do anything to it, but we certainly, from your description, are of the same opinion as you. We do not recollect any method of making papier mineral more transparent, but you would get the same effect by making the other parts more opaque, which can be done by stump and blacklead. The best method of converting an under-exposed negative into a positive is to treat it with alabastrine solution:—

Mercury perchloride	40 gr.
Hydrochloric acid (pure)	1 dram.
Salt	20 gr.
Sulphate of iron	20 ,,
Distilled water	2 oz.

Allow it to soak till bleached, then wash and dry. It is questionable whether this is permanent.

Xerxes.—We should like to see your negatives before speaking about them, but from the fact of pour getting green fog with so many developers we should suspect dirty dishes or fingers.

A. C. E. D.—It is difficult not knowing the composition of the bath, to give you any advice, but at hazard we should say that if you put a lot of spoilt untoned prints and clippings of paper in the bath and allow the same to stand for a few hours, it will give you better tones. You could easily obtain sulphocyanide from any photographic dealer. Prints returned.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* **Fourpence**, *Every additional* **three** *words,* **one penny**. *The name and address of the sender* **must be paid for**. *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* **one** *word; compound words count as* **two** *words.)*

DEPOSITS.—*Money for goods forwarded on approval may be deposited with the Publishers of the* Amateur Photographer, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge 1s.*

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* Amateur Photographer, *1, Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* Editor Amateur Photographer, *1, Creed Lane, London E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.***, *or a commission of* ***2½ per cent.***, *upon the sale price of the apparatus.*

Bicycles, Tricycles, etc.—Bicycle, Safety Premier, diamond frame, solid front, cushion back wheel, perfect condition, accessories, cost £14. Offers?—Miskin, 162, York Road, S.E.

Singer Apollo Safety, complete, solid tyre, ball bearings throughout except head, excellent condition, £9.—A. Mossom, Balmoral Terrace, Darlington.

Cameras, etc.—Quarter-plate camera by amateur, slide, and tripod, 16s.; with lens, 20s.—W. Beech, 41, Hall Street, Stockport.

Half-plate camera and slide, 52s. 6d., worth double, new.—Scott, 14, Nelson Street, King's Lynn.

Lancaster's half-plate Le Meritoire, complete, cost £3 3s., price £2 2s.—Cave, Chemist, Southport.

Cameras, Lenses, etc.—Whole-plate camera, Underwood's new R.R. lens, W.A. lens, four double slides in case, finder, cost £20, price £12.—G., 15, Margaret Road, Kentish Town, N.W.

French 13 by 18 cm. camera, three double backs, R.R. lens, iris diaphragm to cover, cost £5, will take 50s.—Lunn, 40, Chorley New Road, Bolton.

Splendid mahogany studio camera, whole-plate, bellows, London make, slide with adjustable carrier for all sizes, Voightlander's whole-plate euryscope lens, lot £6 10s. ; lens worth money.—Green, Photographer, Rotherham.

Half-plate special Instantograph, combination rectigraph lens, six double dark slides, waterproof case, 90s.—P. Hosking, 212, Lambeth Road, S.E.

Half-plate camera, Optimus euryscope lens, three double backs in canvas case, price £6, complete.—Wm. Howard, Limehurst, Ashton-under-Lyne.

Mason's half-plate camera, three slides, R.R. lens, bag, etc., equal to new, £4 10s.—Francke, St.Saviour's Road, Jersey.

Half camera and stand, also cabinet portrait lens.—12, Curtain Road, Shoreditch.

Changing-Back.—Shew's quarter-plate changing-back, cost £2 2s. What offers?—Vicar, St. Philip's Southport.

Dark-Room.—Dear's wooden portable dark-room, 6¼ by 3½ by 3, hinged sides, lined, good lock, shelves, sink, waste pipe, ruby glass window, used only twice, price 30s., in perfect condition.—R. H. Blyth, Old Elvet, Durham.

Enlarging Apparatus.—Lancaster's 12 by 10 enlarging camera, 20s.—111, Shakespeare Road, Herne Hill.

Exposure Meter.—For sale, Watkins' exposure meter, nearly new, with extra divided ring for enlarging, cost 18s., price 12s., with packet of refills.—Geo. Richardson, 35, Frederick Street, Bury, Lancs.

Hand-cameras, etc.—Eureka hand-camera, quarter-plate, R.R. lens, in perfect condition, 70s.—Apply, 42, Copers Cope Road, Beckenham.

A bargain. Houghton's Shuttle hand-camera, extra-rapid R.R. lens, latest improvements, automatic exposure record, shutter to finder lenses, covered black morocco, perfect condition, waterproof case, cost last year £8 10s., price £5 10s.—Till, St. Roch's, Hampton Wick.

Robinson's Luzo hand-camera, R.R. lens, rollholder, carries 100 films, 2¾in. diameter, beautifully made, complete in leather case, £2.—Apply, 122, Southwark Street, S.E.

Kodak, No. 3 Regular, good as new, packet 40 films, price £6.—Howell, Yeovil.

Special Zoka, new, only used once, cost 21s., take 15s , perfect order.—W. N., 4, The Bayle, Folkestone.

Crouch's hand-camera, lens, 5in., working at *f*/8, iris diaphragms, new, £2, cost £3.—H. Lee, Thornhurst, Wolverhampton.

Fallowfield's Facile hand-camera, with view-finder and 12 metal sheaths, all complete and as good as new, only used three or four times, will accept £3 cash.—Mr. Lane, Cambridge Villa, Worthington Road, Surbiton, S.W.

Lantern Slides.—Given away, 24 coloured photographic slides, Rome, 10s.—Hawkins, Cedar Villa, Latchford.

Lenses, etc—Carte-de-visite lens (Voightlander's), 15s.—111, Shakespeare Road, Herne Hill, S.E.

Grand 15 by 12 lens by Dallmeyer, splendid for groups, £5; approval anywhere on deposit.—111, Shakespeare Road, Herne Hill, S.E.

Fine whole-plate rapid rectilinear, covers *f*/8, perfect, bargain, 30s.—Lenz, 8, Kenilworth Road, Willesden Lane, London.

Splendid whole-plate R.R , iris diaphragms, exquisite definition, faultless, 36s., guaranteed.—Photo, 10, High Street, Harlesden, N.W.

Lens, splendid half-plate rapid rectilinear, first-class definition, bargain, 22s.—Address, W. E., Sims' Library, Willesden Green, N.W.

Cabinet portrait lens by Watson, sell for £4, or xchange for Wray or Ross whole-plate rectilinear ens.—42, Copers' Cope Road, Beckenham.

Nearly new quarter R.R., good definition, Waterhouse diaphragms, 18s. 6d. ; approval.—X., 30, Victor Terrace, College Park, W.

Ross' portable symmetrical, No 4, 6in. focus, a beauty, £2 16s.—Gunston, 14, Westmorland Terrace, Bath.

6 by 5 Dallmeyer R.R., as new, covers splendidly, cost 110s., price 75s.—Clare-Bradshaw, Ramsgate.

Sets.—7½ by 5 Watson's Premier camera, mounted in aluminium, with turntable and tripod stand, four double backs with carriers for half-plate, two extra fronts, four printing frames, shutter, six negative storers, two bags, Ross' 8in. P.S. lens with iris diaphragms, in aluminium mount, equal to new, price £16 10s.—H., 55, Valplaisant, Jersey.

Selling off cheap, two cameras, three lenses (Dallmeyer), folding stand, two backgrounds, burnisher, 12 printing frames, six dishes, chemicals, bottles, etc., cost £20. What offers for the lot? In good condition. Particulars, Hennis, Houghton, Fence Houses.

12 by 10 Watson's Acme camera, lens, and tripod, latest pattern, nearly new, bargain.—Watson, 313, High Holborn.

High-class half-plate double extension camera and R.R. lens, three double backs, with leather case and tripod, complete, by Crouch, in excellent condition, £8 cash, cost double, a bargain. Can be seen at 122, Southwark Street, S.E.

Mayfield's 3¼ by 3¼ complete set, R.R. lens, three double backs, in leather case with tripod, £3, very compact.—122, Southwark Street, S.E.

Set, including Lancaster's 1892 Instantograph camera, lens, and shutter, two double backs, strong very light stand suitable for cyclists, developing and toning dishes, chemicals, and all necessaries, £3 10s., great bargain.—Apply, J. Aimers, 37, College Green, Dublin.

Lancaster's quarter-plate Instantograph camera, slide, lens, shutter, and ash tripod, 5 by 4 Optimus R.R. lens, 55s. the lot, or offers.—Wood, Butcher, East Grinstead.

Half-plate camera, conical, extension bellows, three double backs, R R. lens, and shutter, complete in box, good ash tripod, etc., all in perfect order, £4 10s.—J. Hassell, 38, Chalk Farm Road, Camden Town, N.W

Half-plate camera, double extension, with rack and pinion, rising front, reversing swing back, three double dark slides, R.R. lens, with Waterhouse diaphragm, four-fold stand, and leather case, complete, £4 10s. ; half-plate camera, lens, and one double dark slide, 15s. ; burnisher, nearly new, 8s. 6d ; background, 70 by 60, 5s.—Taylor, 38, Victoria Road, Aston, Birmingham.

Lancaster's 1891 quarter-plate Instantograph, including tripod, two dark slides, lens, instantaneous shutter, nearly new, cost 47s., take 35s.—Lunham, 32, Eaton Rise, Ealing.

Underwood's half-plate camera, rectilinear lens, W.A. rectilinear lens, both half-plate, camera bag, Ashford tripod, waterproof bag, studio stand, Decoudun meter, view meter, burnisher, cutting glass, c.-d.-v., cabinet, 14 by 10 porcelain dish, seven developing dishes, measures, changing bag, three quarter-plate frames, three half-plate, lot chemicals, lot cost £12, will take £8, or open to offers for any part, new 1892.—Hetherington, 39, Stanhope Street, Newcastle-on-Tyne.

Lightning tripod, for quarter or half-plate, in leather and canvas case, equal to new, cost 27s., price 17s. 6d. ; also Lancaster's special patent half-plate camera, with R.R. lens, iris diaphragm, drop shutter, three double backs, double size cloth canvas case, compound focusser, dry plate box, price £7 10s.—Rev. J. Chapple, Lincoln.

Underwood's Instanto quarter-plate set, rising front, etc., good lens, iris diaphragm, three double backs, pneumatic shutter, 35s., or part exchange half-plate set.—Parker, Culmore, Londonderry.

Sundries.—170 back number of AMATEUR PHOTOGRAPHER to date, in good condition, price 10s., or exchange anything useful.—J. Slator, Melbourne Cottage, Stuart Road, Peckham Rye, S.E.

Tripod stand for half-plate, three-fold, 7s. 6d., bargain.—Lowson, Westborough, Scarborough.

WANTED.

Dark Slides.—Wanted, two double half-plate slides for Underwood's Instanto camera.—R. J., 13, Dawes Street, New Brompton, Kent.

Hand-cameras, etc. — Wanted, Underwood's Sphynx or other hand-camera, with rectilinear lens and focussing arrangement ; approval ; deposit. Full particulars to Dr. Liebstein, Hartford, Cheshire.

Wanted, hand-camera, large size preferred, good makers, with fast shutter, plain or twin lens.—Photo, 10, St. Matthew's Street, Ipswich.

Lenses, etc.—Wanted, quarter-plate wide-angle lens, or Lancaster's combination rectigraph, cheap for cash.—Webb, Hornsea, Hull.

Sets.—Wanted, 5 by 4 set with case and three double slides ; exchange first-rate old violin and case, or sell £4 —L., 124, Holly Park Road, Friern Barnet, N.

Studio.—Wanted, a portable studio, about 16 or 18 feet long by 9 or 10 feet wide, cheap for cash. Particulars to Geo. Lodge, 39, Low Moorsley, Fence Houses, Durham.

Bijou Enlarging Lantern.—Hughes' patent rectangular or square condensers used by Van der Weyde and others, reduces size nearly half ; portable, unique, scientifically constructed, and optically correct.

Bijou Enlarging Lantern is the only perfect enlarger, high-class lenses and workmanship.

Bijou Enlarging Lantern, new design, takes negatives all sizes, gives uniform illumination. Every amateur and photographer should possess one, gives universal satisfaction. Enthusiastic testimony from all sources. Prices with or without objectives sent on application. Cheapest and best W. C. Hughes, Brewster House, Mortimer Road, Kingsland, London, N. Now ready, grandly illustrated Lantern Catalogue, over 180 choice wood-blocks of the finest instruments extant, 6d., postage 3d.

Bargains in Cameras and Sets.—Underwood's whole-plate Field camera, double extension, leather bellows, rising front, reversing and swing back, wide-angle movement, width when closed 2 in., fitted very fine rapid rectilinear lens, iris stops, double book-form slide, folding stand, and canvas case, £8 5s. ; Lancaster's whole-plate brass-bound Instantograph, wide-angle movement, all latest improvements, leather bellows, etc,, fitted Lancaster lens, iris stops, instantaneous shutter, two double brass - bound slides, carriers and folding stand, finest condition, £6 17s. 6d. ; half-plate Spanish mahogany camera by Mallett, double extension, rising front, swing and reversing back, three double book form slides, fitted rapid rectilinear lens by Laverne, Waterhouse stops, two-fold stand and case, real bargain, £5 5s.' half-plate camera, by Houghton, Holborn, grand lot, double extension, rising and falling front, swing and reversing back, three double slides, grand rapid rectilinear lens, iris stops, works *f*/8, and three-fold stand, set as new, £6 10s. ; quarter-plate special brass-bound Instantograph, double extension, rising front, swing and reversing back, Instantograph lens and shutter, one mahogany, and two Tylar's medal slides, and folding stand, 42s. 6d. ; Lancaster's quarter - plate Instantograph. Lancaster lens and shutter, double slide, folding stand and case, as new, 25s. **All above sets guaranteed as described in every detail. On view, City Sale and Exchange, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.**

Bargains in Lenses.—Dallmeyer rectilinear landscape patent lens, fitted Waterhouse stops, grand definition, covers well, 13½ in. focus, size 10 by 8, £4 10s. ; 8 by 5 Grubb aplanatic doublet lens, fitted Waterhouse stops, works *f*/8, best condition, £3 15s. ; Optimus 7 by 5 landscape lens, rotating stops, quite new, 27s. 6d. ; half-plate rapid rectilinear lens by Vevers, Leeds, fitted Waterhouse stops, works *f*/8, 8½ in. focus, 17s. 6d. ; half-plate rapid rectilinear, by Atkinson, Liverpool, Waterhouse stops, grand definition, covers well, 15s. ; 7 by 5 rapid rectilinear by Browning, fitted Waterhouse stops, grand definition, as new, 27s. 6d. ; 7 by 5 rapid rectilinear lens, by Laverne, works *f*/8, movable hood, grand definition, covers well, as new, 27s. 6d. ; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s. ; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works *f*/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s. ; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works *f*/8, movable hood, as new, 45s. ; 5 by 4 Dallmeyer wide - angle landscape lens rotating (1A patent), rotating stops, grand definition, 50s. ; Laverne ¼ wide-angle rectilinear, finest condition, 17s. 6d. ; Dallmeyer c.d.v. portrait lens (1 B). Waterhouse stop, rack focussing, condition as new, £3 17s. 6d., cost £6 5s. **On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.**

Bargains in Hand Cameras.—London Stereoscopic Company's twin-lens Artist hand-camera, fitted Black Band lenses, Waterhouse stops, works *f*/6, adjustable focus, full-size finder, three double dark slides, in solid leather case, £11 5s. ; Crouch-Dresser hand-camera, fitted Crouch rapid rectilinear lens, iris stops, time and instantaneous shutter, adjustable focus, rising front, two finders, covered leather, six double dark slides, finest condition, £6 17s. 6d. ; No. 2 Kodak, fitted R.R. lens, time and instantaneous shutter, finder, carries 100 films, covered leather, in solid leather case, £4 10s. ; Rouch Eureka hand-camera, fitted Rouch rapid rectilinear lens, Waterhouse stops, blind shutter, finder, bag changing, covered leather, finest condition, £4 10s. ; Adams' Otto hand-camera, fitted very fine landscape lens, time and instantaneous shutter, two finders, covered leather, 40s. ; Talmer hand-camera, as new, good lens, time and instantaneous shutter, carries twelve quarter-plates, bag changing, two large finders, lowest, 63s. ; Adams' Ideal hand-cameras, fitted rapid rectilinear lens, time and instantaneous shutter, two finders, carries 12 quarter-plates, covered morocco, £5 12s. 6d. ; Fallowfield's Facile hand-camera, fitted R.R. lens, time and instantaneous shutter, carries twelve quarter-plates, condition as new, £3 17s. 6d. ; Radial hand-camera, by Marion, fitted "Soho" lens, carries twelve quarter-plates, shutter, two finders, focusser, etc., in leather case, £5 17s. 6d. ; Ariel hand-camera, leather bellows, fitted Wray's 5 in. R.R. lens, rotating stops, Thornton-Pickard shutter, three double hook-form slides, finder, complete in case, as new, £5 10s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

ENLARGING APPARATUS, quarter-plate, 5in. condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work. —Hume, 1, West College Street, Edinburgh.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

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The AMATEUR PHOTOGRAPHER

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Offices, 1, Creed Lane, Ludgate Hill, London, E.C.

No. 451. Vol. XVII.] FRIDAY, MAY 26, 1893. [Price Twopence.

OUR ◆ VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 till 5 o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from 10 till 1 o'clock.

Our Views.—The Philadelphia Exhibition—Death of Albumen Paper—English Exhibits for Sale—American Work—Analysis of Exhibits—The Judge's Awards—The P.S G.B. Judging Committee—The Convention—The P.S.G.B. Exhibition—The Deposit System—The Royal Plate—A New Invention—An Artist's Opinion of Photography—Another New Developer—A New Feature.

Flotsam and Jetsam. By Anchorite.

Leader.—Composite Heliochromy.

Letters — Toning Solio (Phosphate) — Conferences of Judges (Bayley) — A Recommendation (F.R.A.S.)—A Protest (Caer Glowe)—The Photographic Salon (Davison).

Articles—Practical Hints on Obtaining Pictures (Hinton)—Is the Present Construction of Studios Wrong (Harrison)—Retouching (Morgan)—Home-Sensitised Paper (Ardaseer)—A Day with the League (Man About Town).

Reviews—Half Holidays with the Camera—A B C Guide to Autotype printing—Holiday Resorts, Brighton.

Articles—How I Constructed My Dark-Room (Broadbent).

Societies' Meetings — Aston — Brixton — Gosport — Hackney—Lewisham — N. London — Putney — Richmond — Southsea — Stockton.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Print Competition, No. 49, Figure Study.—Latest day, June 19th.—*Prizes:* **Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, June 30th, 1893.)**

Mr. Julius F. Sachse, the Editor of the *American Journal of Photography*, in the May issue of that periodical draws some useful "lessons" to be learnt from the Philadelphia Exhibition. The first lesson is as follows: "Independent of the photographic education it affords to the general public, it has shown several important facts, the most important one of which is, perhaps, that the days of the old-style albumen print have departed. From all parts of the world come prints made by the platinum, bromide, and kindred processes, showing that the movement for the supercedure of albumenised paper is a general one among all scientific workers."

◆

Although we have heard many a time and oft that the albumen print is dead, there certainly seems to be far more foundation for this statement than at any previous time. A very startling fact has come to our notice within the last few months. Taking the average of our competitions, we find that the number of prints sent in is as follows:—

Gelatino-chloride papers	65	per cent.
Platinotype	26	,,
Bromide	2	,,
Rough-surface printing-out	6	,,
Albumen	1	,,

These figures are very striking, showing that albumenised paper is slowly but surely being replaced by others.

◆

Mr. Sachse also states that "the absence of the commercial feature in the American exhibits is also a pleasing feature, whereas almost every English exhibit bears the legend "For sale." The lesson which this teaches is obvious to all. We do not quite know what our confrere wishes to imply as being so obvious to all, but might it not be ascribed to the desire of English exhibitors to save return freight and carriage?

◆

We again quote from the above-mentioned article: "Another interesting lesson brought out prominently is that a comparison of the home product with the choicest foreign specimens shows that our three local home clubs in general, and the Photographic Society of Philadelphia in particular, are second to none in either art or technique, showing that our home organisations are fully up to the wonderful advances which are certainly being made throughout the civilised world."

◆

Analysing the exhibits, we find the following facts:—

Members of American societies	104
Unattached Americans	22
Total	126

Members of English societies	35
Unattached English exhibitors	13
Total	48
Members of foreign societies	39
Unattached foreign exhibitors	3
Total	42
Total number of exhibits by Americans	777
" " " foreigners	425
Awards gained by Americans	12
" " foreigners	14

* * *

In the face of these facts we can hardly endorse the statement that the American exhibits are as good as the foreign, or at least the judges did not think so. Of course, the judges' awards are questioned, for in an editorial note we find, "It would be of great interest to the majority of exhibitors at the late sixth joint exhibition if the judges of awards would inform them as to their standard of excellence upon which they based their conclusions, as in several cases the question arises why an award was made at all, while so many apparently far superior exhibits were passed by without notice."

* * *

It was ever thus. Hardly an exhibition or competition is held but someone grumbles at the decision of the judges. Each man's offspring is a swan in his own eyes, though others can recognise it as a goose. We sincerely trust that the committee of the P.S.G.B. now deliberating on the subject may be able to lay down rules of guidance acceptable to all, but even if they do, until an exhibitor recognises the fact that he is in honour bound to accept the judges' decision as final, no matter how adverse to him, we shall have the same trouble.

* * *

The Photographic Convention will be held at Plymouth during the week beginning on July 3rd. The Right Hon. the Mayor of Plymouth, Mr. W. Yaw, has set aside the Western Law Court for the use of the Convention, and the Council of the Plymouth Institution has offered the use of the Art Gallery of the Athenæum for the exhibition.

* * *

A full text of the programme will be published in due course, and as the neighbourhood offers special facilities for excursions, and the President-elect is Mr. Geo. Mason, of Glasgow, with Mr. Cembrano, jun., as the Secretary, we are assured of another successful meeting, notwithstanding the counter attraction of Chicago. It may be noted that the subscription, which is only 5s., is now due, and the Hon. Secretary will be glad to receive the same from present or would-be members.

* * *

We publish elsewhere the regulations of the Pall Mall Exhibition, and we congratulate the P.S.G.B. on getting the same out so early. As usual, the Gallery of the Royal Society of Painters in Water Colours, 5a, Pall Mall East, S.W., is the locale; and with a board of judges composed of Dr. Emerson, Col. Gale, Fred Hollyer, F. M. Sutcliffe, and J. B. B. Wellington, with Chapman Jones and Andrew Pringle as scientific experts, coupled with the statement that "the judges will select the exhibits before the Hanging Committee begin their duties," we may expect something good. As usual, a conversazione will be held on September 23rd at 8 p.m., to open the exhibition.

* * *

We have previously frequently called the attention of our readers to the deposit system which we have instituted in connection with our Sale and Exchange column, and information placed before us this week necessitates our again directing attention to it. Every honest seller cannot object, whilst it forms an exceedingly efficient protection to the buyer.

* * *

Her Majesty the Queen has graciously granted permission to the editor of the *Gentlewoman* to photograph the choicest specimens of her private gold plate at Windsor Castle, which will be reproduced in that journal, accompanied by a series of descriptive articles. The first, which appeared last week, includes some magnificent centre-pieces, part of the State dinner service, the largest of which weighs 2,700 oz., some William III. and George IV. sconces, exquisitely moulded candelabra, Royal flagons, and the Jubilee gift made by her children and grandchildren "to our beloved mother and grandmother."

* * *

Other portions of the gold plate of special interest are the giant centre table fountain designed by Prince Albert, which shoots up a perfumed jet, the chief figures of which are modelled from the Queen's favourite Arab horses. Then there is the "anointing spoon" used at the coronation of the kings. and the gold font at which the Royal children and grandchildren have been baptised; statuettes descriptive of Highland games, and one with Mr. John Brown standing beside Her Majesty's favourite pony Flora, and the collie Sharp. The series includes the breakfast service used by the Queen at Windsor, and the hot-water urn standing in her morning-room.

* * *

Thus through the reproduction of the work of the camera the public will be shown the most interesting contents of this Royal treasure-house.

* * *

Fresh rumours of marvellous photographic inventions of every description daily reach our astonished ears. At the same time it is a curious fact that the subsequent history of these evolutions of genius is in the majority of cases unknown; and the only conclusion that can be come to is that the aforesaid discoveries, that were going to revolutionise the world in a very short space of time, have, sad to relate, come to an unexpected and untimely end. The following paragraph from the pages of a lay contemporary refers to the very latest "photographic wonder:"

> "An exceedingly interesting invention consists of a camera combined with a parachute, especially designed for obtaining photographs of fortifications and of the camps of the enemy, although pictures may also be made for general surveying purposes. The parachute is snugly folded in a thin case at the end of a rocket, which is fired to the required height, and burst open by means of a time fuse. The explosion sets free the parachute, which is protected from injury by means of a casing of asbestos. The parachute has a number of thin umbrella ribs, and these are forced outwards and kept in that position by means of a strong spiral spring. From the parachute a camera is suspended, and a string held by the operator is attached by a universal joint to the bottom of the device, for the purpose of pulling the parachute back. The camera is fitted with an instantaneous shutter, operated by clockwork, so as to give several exposures at intervals. At the back of the box is an arrangement by which the plates can be manipulated as though by clockwork. A swinging motion can be given the camera by the operator, and this will enable him to obtain successive pictures over a wide area. The whole arrangement is exceedingly ingenious, and if it can be employed practically it marks an important step in the science of modern warfare."

* * *

This, of course, looks very nice in print, and there *may* be some (very few, we fancy) who are simple-minded enough to believe that it is true. A practical man, however, on reading the paragraph will chuckle hugely. We shall be quite prepared henceforth to read with calm indifference the announcement of any future extraordinary discovery, no matter how miraculous it may seem.

On the occasion of the awarding of the prizes gained by the students of the National Art Training School at South Kensington Museum on the 18th inst., Mr. Yeames, R.A., made the following remarks on photography:—

> "When they entered into their work in the field of Art they would come under many influences, and it was on one of these he wished to dwell, that of photography. Photography had done a great deal, especially for Art. In one branch it had been an enormous help in the reproduction of the works of Fine Art throughout the world. Photography was a feature of the age of science and mechanical appliances, and, like all things scientific, dealt in facts. In no photograph did one see any expression of the emotion of the heart; but these were qualities which they, as artists, would have to deal with. In a broad way he would say the art of drawing had improved under the influence of photography, but he would make a slight exception as regards the rendering of human form and face by the great masters. He could not say that photography had excelled the productions of these great men who had such a keen perception of everything in nature that they were able to produce results that photography had never surpassed. But with nature in general, vegetable life, clouds, etc., photography had brought to light many things not known before. With reference to when and how students should use photography, he said the artist could use it with impunity when his knowledge enabled him to do without its services: that is, a man should be master of photography, and not photography master of the man. Before using it he should be so well grounded in the *technique* of drawing as to be able to draw any object in nature; photography would then be of much use to him, as it would lighten his labour and extend the range of his subjects. Photography should be used only as an aid to Art work."

Yet another new developer, "Reducin," is announced. It is a derivative of Resorcin, and is prepared by the Chemiche Fabrik auf Aktien (late E. Schering). Like Amidol, no alkali is required, an acid solution of sodium sulphite being used. We shall hope to give a full translation of the note which appears in the *Photographische Mittheilungen* in our next.

Under Society Notes we give the rules and conditions of an exhibition to be held in Madras in December, 1893.

Owing to the Whitsun holidays, we are unable to reproduce the winning prints in our last monthly "Architecture" competition.

Next week we shall start the first of a monthly series of articles entitled "The Month," in which we hope to include a complete summary of photographic work and literature. This will appear in the first week in each month. Some such summary has been attempted before, but we think that the new article will be an advance of anything that has preceded it.

Flotsam and Jetsam.

There were not a few humble followers of photography who looked with eager interest to see what great and important part the camera played in the tremendous function at the opening of the World's Fair the other day. It could never be that something should not be heard of it and of its doings amongst the glowing accounts of the ceremony and all its accompanying details that flashed along the wires to this country. And yet all the papers were dumb, and only now at last has justice been done by the correspondent of the *Scotsman*.

He graphically tells the story of how the silence of the moment "when the President stepped forward to the pedestal upon which, nestling amongst the folds of a silken 'stars and stripes' banner, the magic button lay exposed . . . was broken only by the click of the shutters of the many hundred cameras which were focussed to record the event." There, that is quite enough to satisfy the claims of the most eager champion of photography—that in that supreme moment it should have been so conspicuous.

Indeed, a new proverb, or rather alteration of an old one, is suggested by the event. We shall no longer hear of a silence so great that one could hear a pin drop, but of a hush so profound that the click of the photographers' shutters was distinctly audible!

Those concerned in the innumerable arts more or less closely related to photography will, with all lovers of engravings, be interested in the new photo-intaglio process, on which Mr. L. E. Levy recently read a paper before the Franklin Institute. He calls it "Photo-Mezzotint." By it the most delicate gradations of tone can be obtained, the effect being gained by minute lines and stipples of varying thicknesses, but of uniform distance apart from centre to centre.

The camera was called in to take a record of the appearance of a marvellous party of cyclists the other day. A number of Dr. Campbell's pupils from the Royal Normal College for the Blind at Norwood stopped at the Mansion House after having come through the crowded streets in perfect ease and safety, blind as they were and mounted on veritable tricycles. They were on their way to Birmingham to be present at the opening of a new blind school there, and had broken their journey at the invitation of the Lord Mayor.

They were mounted on ordinary tandem tricycles, all connected so that they could be steered by the front machine, on which of course sat a steersman with the use of his eyes. They were duly photographed outside the Mansion House on their machines, and then fairly set out to thread Cheapside and make their way to Aylesbury, *en route* for the midland capital.

There are naturally always those to be found whose interest in Royalty and all its belongings is deep and sincere. We can understand it, especially in the softer sex. On Monday last no doubt Windsor Castle was filled with the usual crowds who go at holiday times to see that stately pile, and to catch some faint suggestion of the presence of Royalty by a hurried skip through the State apartments.

All such will of course be interested in the series of photographs of Her Majesty's private gold plate at the Castle, taken by special permission, which the Editor of the *Gentlewoman* is now reproducing in his paper. There is very much of historic interest connected with this old plate, besides its intrinsic beauty and worth, and by the aid of the camera its appearance can now be brought home to all interested in it with striking verisimilitude.

COMPOSITE HELIOCHROMY.

Mr. F. E. Ives, of Philadelphia, lectured on the 17th inst. before the Society of Arts on the above subject. Our readers will remember that he had already delivered lectures in England last year, and practically his lecture of last week was merely reporting progress. The first part of his paper was a review of his previous work, an explanation of the heliochromoscope and projection of some coloured pictures on the screen. Of the beauty and faithfulness of these latter there is not the slightest cavil. Perhaps the most striking was a dish of fruit.

Mr. Ives then gave the following note on the camera used by him:—

> "One of the cameras I use for making the chromogram negatives is a converted heliochromoscope, the eye-piece serving as an objective, projecting an image that includes nearly 50 deg. angle of view. It may be readily reconverted into a heliochromoscope by substituting a chromogram holder and *pure* colour screens for the

plate holder and *selective* colour screens. In this instrument, transparent axial mirrors are used for the images of the green and blue-violet sensations, and a pair of silvered mirrors for the image of the red sensation, because the latter image must be made many times brighter than the others on the sensitive plate employed. This is a more compact and convenient form of camera than any other that I have devised for this purpose, but the aperture of the eye-piece is so small that it is necessary to give very long exposures—up to ten minutes on well-lighted landscapes with ordinary isochromatic plates.

"When circumstances do not admit of the longer exposure, I use another form of camera, in which the mirror system is arranged in front of three separate objectives. This camera, in comparison with the compact inverted heliochromoscope, is somewhat clumsy, and includes a smaller angle of view, but has an effective aperture of about *f*/16 for the image of the red sensation, and requires not more than 30 sec. exposure for objects illuminated with clear sunlight."

After running through the defects of his system for reproducing the colours of nature, Mr. Ives spoke of practical difficulties which, as pointed out by Captain Abney, the Chairman for the evening, had considerable bearing on ordinary practical work.

"In actual practice, defects due to quite different causes have been far more troublesome and irritating to me than either of those described. Fortunately, however, they are not inherent in the process, and it was only necessary to discover their true cause in order to eliminate them. With certain developers—hydroquinone being one—the image of the blue-violet sensation commences to develop first, and goes on almost to completion long before the detail is all out in the image of the red sensation, even though the latter may appear relatively over-exposed after the development is fully carried out. Under such circumstances, the relation between the two images will vary with the time the plate is left in the developer, and it is difficult to insure accuracy. This difficulty was substantially overcome by using the eikonogen developer, and seems to have entirely disappeared with rodinal development.

"With some sensitive plates, the image of the green sensation, formed principally in eoside of silver, develops more density than either of the other images, and introduces troublesome irregularities. Fortunately, some of the best makes of sensitive plates are free from this defect, and may be selected for this purpose.

"For a long time, in spite of every precaution I knew how to take, my negatives developed considerably more density towards the edges of the plate than towards the middle. The consequence of this was that the top of the negative of the red sensation, and the bottom and outer sides of the negatives of the green and blue-violet sensations, would be so overdense as to make the colours in those parts of the reproduction distinctly incorrect. I imagined this to be due to a defect in the sensitive plates, an effect of the more rapid drying of the emulsion at the edges in process of manufacture. In this I was, happily, mistaken. It proved to be due to access of air to the outer portions of the plate during the process of development, by constant rocking in a dish containing a rather small quantity of developer. The unevenness disappeared as if by magic when the plates were developed by deep immersion in the developer in a dipping bath. Probably the reason that this unequal action of the developer has not been noticed in monochrome photography is, that the centre of the plate usually receives more light than the edges, and the action which is so injurious in the colour process is seldom more than sufficient to compensate for this unevenness of illumination.

"In my earlier experiments, light objects against a dark ground frequently reproduced with a red or reddish halo, because of strong halation in the image of the red sensation, so that, even for objects that come very well in monochrome photography, I found that the plates should be "backed" for composite heliochromy.

The results which I show, taken in connection with what I have said, will make it evident that the process has already been reduced to very successful practical operation in my hands, and that the conditions of success are such as may easily be realised by others when provided with the same apparatus properly adjusted."

In conversation with Mr. Ives after the lecture, we hear that the heliochromoscope will shortly be put on the market, and it will doubtless add yet another drawing-room ornament, and replace to some extent the stereoscope. If we may be allowed to say so, we should have thought that this was rather an illustration of the old adage of putting the cart before the horse—we should say, let us have the special camera first, and then the heliochromoscope, so that we may make chromograms to put in the same.

Letters to the Editor.

TONING SOLIO.

SIR,—In reply to "Maidstone's" letter in your last issue, I am afraid I must have made a slip, though rather an important one. It ought to be one *grain* of gold, or one *drachm* of the solution of one tube of gold (15 gr.) to 15 drm. of water. Using a grain of gold, I found my prints to tone excellently. My picture, sent up to this month's competition, was toned with that formula, and any fault will doubtless be criticised. I am unable to account for the brown tinge, as I never found it in mine.—Yours, etc.,

PHOSPHATE.

* * * *

AFFILIATION OF PHOTOGRAPHIC SOCIETIES—PROPOSED CONFERENCE OF JUDGES.

SIR,—At the meeting of the delegates of the above, held on March 24th last, it was resolved to invite to a Conference those gentlemen who have most frequently acted as judges at recent open photographic exhibitions, to agree upon lines of action to be followed in judging, and to offer suggestions for the guidance of societies with regard to exhibitions.

I am directed to inform you that in accordance with the above resolution an invitation has been sent to thirty-eight of the best known judges, but as some names may have unintentionally been overlooked, the Committee will be glad if you will make it known that any gentleman who has acted at least four times at open exhibitions will be welcome to join in the deliberations of the Conference.

The meeting will be held during the month of June, and due notice will be given of its date and place.—I am, etc.,

R. CHILD BAYLEY
(Secretary to the Affiliation.)

* * * *

A RECOMMENDATION.

SIR,—I should advise anyone purposing to try Professor Pickering's method of determining the relative sensitiveness of photographic plates to affix a dew-cap to his lens, or he may be seriously troubled with moisture deposited on its surface. It might be made of cardboard, and should be cylindrical in shape, twice as long as the diameter of the lens, open at both ends, and blackened inside. This is always part of the outfit of an astronomical refractor, and it acts perfectly.—Yours, etc.,

F. R. A. S.

* * * *

A PROTEST.

SIR,—On what grounds and to what purpose this eternal puff of the most recent? Is there a "fashion" in photography, that we must all betake ourselves to the last *haute nouveaute* or proclaim ourselves slovens? Amidol! metol! glycin! these are "the only wear," and the old clothes are gone to the ragman!

But suppose that the old should be better? The unsupported testimony of the maker—is that sufficient proof? Let some one who possesses a plate-spoiling instrument which will take a hundred views in as many quarter seconds expose, say, five on the same view (one, let us say, with deep shadows and high lights) on a dull day, on isochromatic plates, giving 1-18th sec., and develop (1) with pyro, (2) with eikonogen, (3) with hydrokinone, (4) with anyone of the new claimants, preferably metol, (5) with eiko cum hydro, and I assert—why should not *I* assert as well as another?—that the last will be the best as to detail, density, sparkle, and all the characteristics of a good negative, and if he adds a grain or two of pyro he will get the yellow tinge which somehow gives *good prints*, and, if he is not careful, more density than he wants.

Verb. sat. sap. Try it and see. You *cannot* get such results with amidol or metol, though they are excellent for bromide paper.—Yours incredulously,

CAER GLOWE.

[With regard to our correspondent's amusing protest, we can only say that some of the new developers certainly possess advantages over the older ones. It is utterly useless to expose two or even 200 plates on any subject as he suggests; the only way to accurately gauge the action of developers is to use a number tablet, a light as constant as possible, and then carefully develop plates exposed under the tablet and compare results. One has thus a means of accurately gauging what a developer will do; in the case suggested there is no criterion We have a series of tests under way, the results of which will shortly be published.—EDITOR.]

* * *

THE PHOTOGRAPHIC SALON.

SIR,—As chairman of the organising committee of the exhibition or salon of photographic pictures to be held at the Dudley Gallery, next October, may I say a word to correct the impression that there is intention to clash with the usual exhibition of the Photographic

Society? The same reason which actuates the Photographic Society in selecting the autumn compels us to take about the same period, and that reason is the difficulty of obtaining a suitable gallery at any other season. We certainly intend to have the best possible picture exhibition, but not to intrench on the usual lines of the Photographic Society, nor in any way to form opposition. Assurance on these points may be gained by a reference to the influential list of our committee, and, further, it may be pointed out that, with one exception, all the judges at the Photographic Society's Exhibition are prominent members of the Salon organisation. The two exhibitions will probably be complementary, and even mutually helpful by taking place at the same time.—Yours, etc.,

George Davison.

Practical Hints on obtaining Pictures.

By A. Horsley Hinton.

I want to be very practical, and very simple, although the very nature of my subject almost forbids the idea of being practical in the sense of giving precise directions for my readers' practice; but when all things out of doors are crying aloud their irresistible invitation to every lover of nature, and, perhaps, especially to the photographer, and seeing, as one does, so many at every turn in town and country camera-laden and intent on following a favourite pursuit, it seems a pity that perhaps for want of a plain word or two much energy and endeavour should be misdirected and many a real success narrowly missed. Moreover, I cannot but believe that there are many who use the camera and who photograph the rural beauties of our country with good intention, and with full conviction of the faults and failings in their own work, but who know of "the artistic" only as some strange mystery which they do not understand and see no way of learning. Could it be learned by a little patient study, could the instincts of the artist be acquired by the reading of a book or purchased for a moderate fee, their way would be clear. The errors, pictorially speaking, in their finished productions once pointed out they can see readily enough and wonder at their existence. Recognising that another and abler man would have done better, they vainly ask of themselves the question, Why cannot I do as well?

Questions put to recognised masters in art bring no satisfactory solution; "How this?" and "How the other?" only awaken answers seemingly vague and evasive, and so I would fain step in, if I might possibly give a little help, not so much as a teacher, but as one who, having found intense pleasure in applying the all too unelastic methods of photography to picture making, desires to impart to all who may feel interested some of the ideas which have been gleaned from the hedgerows and meadows, hillside and forest, which at such a season as this will be eagerly sought by most of those into whose hands these pages are most likely to fall.

I have said I want to be very simple, therefore my good friend who has already attained some little fame within the tiny sphere of art photography may spare me his criticism for this occasion, and be kind enough to wait until I address myself to him.

In the first place I will presume that not the least incentive to my reader for packing up his camera and things and sallying forth into the byways of some chosen country district is the feeling of pleasure which the sunlight and fragrance of springtime awakens in most English hearts. I fancy the love of country scenes is peculiarly characteristic of the English people. I am sure it is so of our photographers, and, as I have found occasion to say at another time, were it not for this love of nature the ranks of amateur photographic workers would be thinner than they are. But the delights of fresh air and sunshine, green fields and leafy trees as enjoyed during an aimless rambles are insufficient for the more actively constituted, and so in many instances comes the desire to record the scenes and objects which please, and the camera affords a ready means of satisfying the desire. How many there are who before they used a camera have vainly tried to sketch—vainly, I say, because the poor unfinished little bit of drawing (and they are nearly always left unfinished) never in any way did justice to the scene or conveyed any measure of satisfaction afterwards. The sensitive plate of our memory and the lens of our delighted eye preserved a far more perfect record of the sight which charmed us, and impelled the taking out of sketch-book and pencil to laboriously copy on to paper the landscape before us.

With very little preparation and readily acquired knowledge of how to use things, our worst photographs were immeasurably better than our very best sketches, and the little measure of success thus easily obtained has lured us on, and the camera and its employment has become a constant pursuit, and a rapacity for picture taking has grown up which will not be satisfied. The country district immediately surrounding our home offered for a long time an apparently inexhaustible field, and then we strayed further off and visited spots made famous by others, or of which some one spoke in terms of high praise.

And yet with all this practice, with all this multiplying of photographs, perhaps the reader is conscious of being but little further advanced than he was some six weeks after he just took up photography as a pastime. He is fully aware that his photographs seem strangely lacking in just those qualities which would gain for them recognition as *pictures*.

Were all students of photography, were all beginners of this frame of mind, then indeed would there be great cause for hope and advancement in a right road were a consummation easily attained. There are too many who are far too well satisfied to go on as they have gone from the very first, using photography of a kind purely as an amusement, indifferent alike as to whether they improve, or certainly without any desire to do with photography any more or any better than thousands have done and are still doing. To such one has little to say. The man who plays cricket, as well as the boy who flies his kite, tries to improve himself and his performance. The billiard player spends hours in practice of skill, elevating what was a mere amusement almost to the dignity of a science. The man who sketches with pen or pencil some favourite spot eventually emulates the admired work of the admitted artist, and yet it is to be feared that there are almost innumerable photographers who care not one jot whether their own work is better or worse than others, and feel no serious desire to improve or make their photography any other than the mere, almost childish, amusement that it is.

Now, I don't suppose we shall ever succeed in instilling ideas and inspirations into such minds as these, and I for one have no desire to; but I am well assured that there are very many who would willingly learn and would welcome and act upon a suggestion. This then is my reason for writing.

In the first place, notwithstanding all that has been said about trying to make our photographs suggestive of the sentiment and poetry of Nature, and although the mere topographical view has been anathematised until it is a wonder it has ever survived, still I doubt very much if many of us are aware of how greatly we move in response to an admiration of certain popular scenes and objects. There are many places where never a Saturday passes without a few, and often a great number, of cameras being set up in the roadway or village street to the amusement of a curious rustic group. Is it Windsor or Canterbury? Is it the hills of Dorking, or the sweet valley of Shiere and Gomshall, or Haslemere? Or why do camera men go to the two Burnhams—the one famous for its beech trees as the other is for oysters? And why Streatley, or

Pangbourne, or Iffley? These and many, many more are places to which the photographer resident in or about London goes to in his scores and hundreds. It is as though picturesque possibilities were a peculiar right vested in certain places which one must make a journey to obtain, as folks go to imbibe the waters of Bath, or to indulge a taste for cream at a Devonshire farmhouse.

The notion seems to prevail that certain places are of themselves picturesque, and a representation of such a place must constitute a satisfactory picture.

Could any greater fallacy exist? Let me tell my reader that the picture does not depend on the *objects* represented but the *manner in which he represents them*, and hence the most ordinary scene may, by the temper in which we regard it and the manner in which we reproduce it, be exalted into a work full of feeling and grace.

If my reader will, instead of going far afield to famous places, strive rather to study the familiar spots near at hand and see what he can do with them, he will probably learn more, and improve himself. Probably the visiting of a notoriously beautiful locality is detrimental rather than otherwise to good pictorial work, and in this way—it were difficult indeed to go to, say, Lynton, in North Devon, without photographing the the quaint old lighthouse tower, the grotesque formations in the Valley of Rocks, and so on. So that in a place abounding in interest of such kind the photographer is exposed to temptations not easy to be resisted, he is overwhelmed with things that are famous, pretty, interesting, and he brings away photographs, often, perhaps, very pleasant to look at and talk over, but in every one it is the thing photographed which is the chief and only cause of pleasure.

In a picture we want something more than this. Take your camera out into a very plain ordinary country scene, one with which perhaps you are well acquainted. There will be little or no local interest, no famous ruined tower, no universally-admired church or bridge, or if there is try and forget it, and quietly and with patience set yourself to find something apart altogether from the interest which attaches to the individual objects, something the pleasantness of which does not strictly belong to these objects themselves, and produce a representation of the scene which is stretched out before you in such a manner as shall convey to your mind afterwards this feeling and idea which pleased you. Or, let me put it differently.

Instead of searching for prettily-grouped cottages, stately trees, an ivy-covered church, and the like, try and ignore their existence, or rather regard them as a means of illustrating how light may fall in pleasing forms, and how deep shadows may be made to contrast with light. It is not the cottages, trees and church of which you make a picture, but the light and shade and aerial effects which these objects make visible. Remember it is the light of the sun or of the sky, and the shadows which it casts, the reflection of the clouds and their shadows, their varying degrees of distinctness and lightness which the atmosphere gives to things near and distant that make your picture.

It is the correct rendering of all this that gives to your photograph truth, that recalls the outdoor impression, and awakens a feeling of pleasure such as the original scene. It is the light, the shadow, the air, *not* the trees and houses, of which we should try and catch something in our pictures; these latter are merely the media, the means of showing or expressing some of the beauties of light and shade.

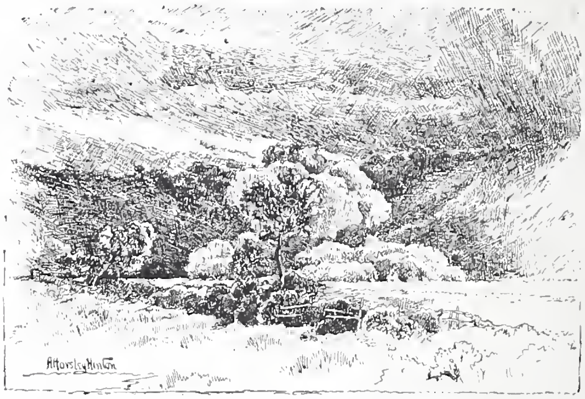
Now, perhaps it will be better understood why I would rather deprecate the going to famous places lest the desire to get a picture of a pretty spot be so strong that the place and the objects therein claim and occupy all our attention, and we neglect that which is of superior importance, namely, the arrangement of light and shade.

In nearly every object there may be a beauty, or rather a source of pleasure, of two kinds—*intrinsic*, or that which belongs to its particular form, and the *extraneous*, or borrowed from surroundings; and whilst both are equally deserving of attention, it is probably the latter which charms us most, and the pleasure of which endures the longest; and yet we are unconscious of it, believing often the pleasure to be derived from the actual or intrinsic beauty of place and thing.

But I said I wanted to be very simple and practical. Whilst here, we are dangerously near to following a more abstruse line of thought than I had intended.

Whether a subject be picturesque or not will depend upon the lighting of it more than anything else, and remember the artist admires mountains and lake, wooded hills and grassy meadows, not for their own sake but for the opportunities which their varied forms give for light and shade, these forms themselves being only manifested by the passage and interruption of light.

Now in evidence of how the unlovely may at times convey a pleasing impression to the senses, I have not unfrequently noted that even the prospect of many house roofs and chimneys, which at the present moment constitute the outlook at my window, may under some circumstances present a very striking yet harmonious arrangement of light and shade. And so in this little sketch there is really nothing in the scene except, perhaps, a happy combination of lines, and yet the scheme of light and shade as I witnessed it when I jotted down a few notes and a rough outline, was exceedingly pleasing and the entire scene full of luminous air and soft tones.



So much then I have said to induce those of my readers who think it desirable to try and get their pictures by studying the effects which will come even upon the most conventional and unpromising regions. The intrinsic beauty and interest of objects tend to photographs of a topographical character; and where there is less intrinsic beauty this danger is minimised, but the deficiency may be supplied by securing something of the extraneous beauty, and it is most often in this beauty, which is borrowed from the environing circumstances, that the poetry and sentiment of the subject lie hid. As regards the success of a picture, the subject, or *what* is represented, is as nothing compared with the photographer or artist, who decided *why* and *how* it should be done. Recall if you will how you have heard it said of a good picture, "Very nice indeed!" and, after a brief pause, "though really there's nothing in it."

"True art finds beauty everywhere," and success depends upon your own perceptions, not upon your opportunities of seeking for things and your leisure for travel.

Next I shall have a still more practical word to say to those going to and fro upon the earth, and walking up and down camera in hand, which, if applied to the test of their own work, may prove of use and make for improvement.

(*To be continued.*)

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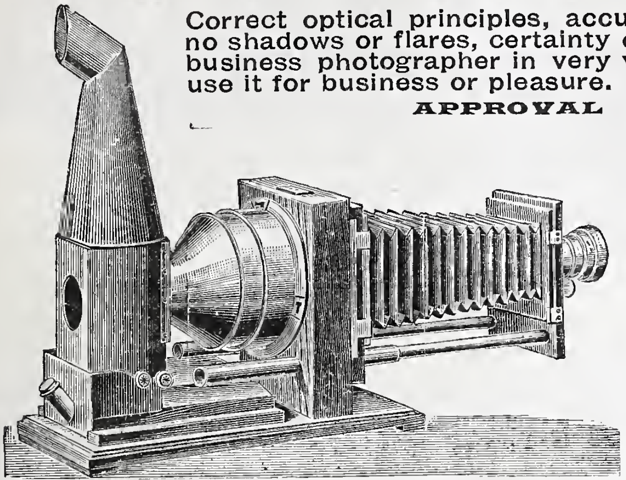

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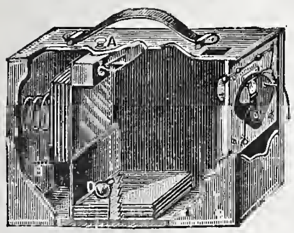

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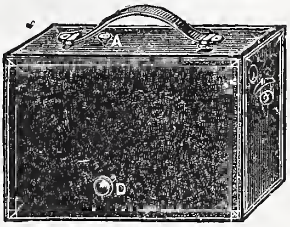

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"Amateur Photographer"
MONTHLY COMPETITIONS

DATES FOR RECEIVING PHOTOGRAPHS—

June 16	**Figure Study.**
July 17	**Landscape.**
Aug. 11	**Seascape and River Scenery.**
Sept. 18	**Hand-camera Work.**

CONDITIONS.

1.—Only one Print to be sent in to each Competition. **The Negatives of the Prize Pictures shall be at the Service of the Proprietors.** All the Prints entered for Competitions shall become the property of the Proprietors.

2.—The work must be entirely that of an Amateur Photographer—exposure, development, retouching, printing, and toning. **Mounting by the Competitor is not compulsory.**

3.—Photographs may be printed by any process or on any paper, but *must* not be printed on opal or mounted in optical contact on glass, or from an enlarged negative.

4.—All Prints must be sent in not later than the **date given.** They will all be acknowledged, and criticised in the "**Amateur Photographer" Illustrated Monthly Supplement,** the Prize Photographs being reproduced.

5.—No name must appear on the Print, but the title must be legibly written on the front of the mount, and the Entry Form duly filled up and enclosed.

6.—Open to Ladies or Gentlemen; one print only to be sent in.

7.—All Prizes will be in the form of Medals from the "**Amateur Photographer's**" dies (small series). No Prize-winner will be allowed to compete again for a Medal of the same value as that awarded him. The "**Amateur Photographer**" Monthly Competitions are for the encouragement of beginners and those who have never entered a Competition or exhibited their work.

8.—Prizes—Silver and Bronze Medal, with Ribbon and Clasp.

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ENTRY FORM.
"Amateur Photographer" Monthly Competitions

No. ____________

Subject ____________

Lens ____________

Stop ____________

Exposure ____________

Date of Exposure ____________

Light ____________

Time of Day ____________

Plate ____________

Printing Process ____________

Toning Bath used ____________

Remarks (short particulars will much oblige) ____________

I ____________ *of* ____________

declare that I am a *__bona-fide__* *Amateur, and that the whole of the work of Exposure, Developing, Printing, Toning, etc was done by me.*

Signed ____________

Is the Present Construction of Studios Wrong in Principle?*

By W. H. Harrison.

In the construction of photographic studios, whenever possible the chief light is obtained from the north, and the studio is principally glazed on the northern side. By this method direct sunlight is cut off from the sitter, and steady illumination is obtained. Hence the light most used by photographers is that reflected by particles floating in the air, for if no particles were there to throw back the light of the sun, we should have the black sky sometimes witnessed in the Alps when the air is extremely dry, and then might almost as well use the light reflected by an unglazed blackboard. It is the same with the sea. Within a few miles of the shore we get different shades of green, which grow clearer as the land is left behind, but farther off the sea appears of a deep indigo colour, because of the scarcity of floating particles to reflect light to the eye. If then Professor Tyndall's plan be tried of putting a particle of large size into the sea by flinging a white dinner-plate overboard, that particle reflects green light to the eye as it sinks, and would do the same were it broken into myriads of smaller particles.

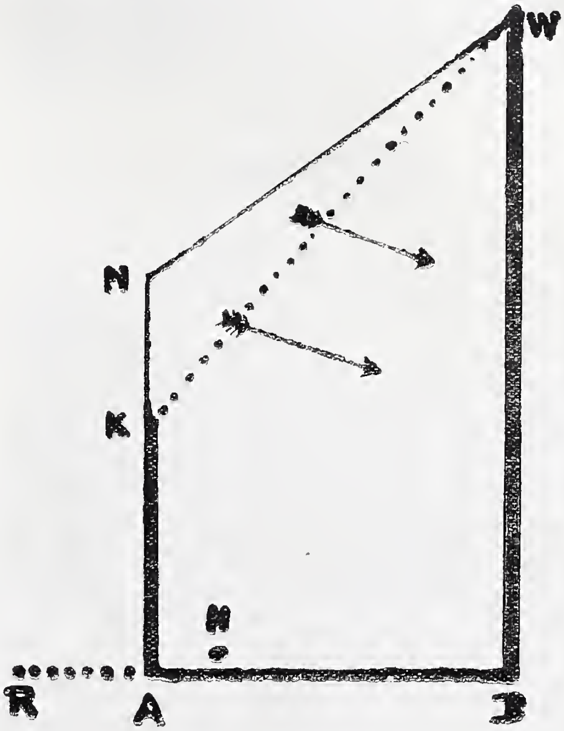
Before coming to the practical part of the subject it is necessary to consider the nature of our reflecting screen in the northern sky. The floating particles in towns consist of minute drops of water, innumerable spores or small seeds, greasy coal-smoke, fragments of dried horse-dung, influenza and other germs, and dirt of varieties innumerable, including dust from meteoric stones rendered incandescent by friction from entering our atmosphere at planetary velocities. These solid particles favour the precipitation of water, so also in a still greater degree does the sulphurous acid given off from our coal fires. These aggregated varieties of floating dirt are to some extent rendered visible when a beam of sunshine is reflected by them so as to mark its track, when it enters a dark cellar through a hole in a shutter; we also see them floating in the light coming from the projection lenses of the optical lantern, and we swallow them wholesale with every breath of air which we take into our lungs. These dirty particles then form our reflecting screen in the sky to the north of the studio.

Sometimes we get a better reflecting screen, consequently more light in the studio, when cumulus or other clouds in the north are illuminated by the sun. This improvement is but partial, because the clouds present also portions of their shadow sides, and do not cover the whole of the northern area in view.

The question I now wish to raise among those present who know so much more about glass studios than myself—who am not the happy possessor of one of them—is, whether it would not be better to abolish the floating dirt reflector and diffuser, to abolish even the floating cloud, and to provide a cloud of our own which shall be always there, which shall present no shadows worth mentioning, to the eye, and shall be of a pure white. I mean a whitewashed wall, for experience with the lantern has already demonstrated that as a dead-white reflector and diffuser of light, nothing excels common whitewash.

Supposing these ideas to be correct, the result is that we shall have to build studios with a southern aspect, glazed high up on their southern sides. The accompanying diagram will show what is intended for verbal descriptions of mechanically constructed objects are liable to confuse both listeners and readers, unless illustrated by drawings to show exactly what is meant. The suggested studios will be high in proportion to their breadth; for instance, let A B be the end of a little studio, say twelve feet wide, then the whitewashed wall W B, of an adjoining building should be perhaps twenty-four feet high, the southern side of the studio is boarded up, except for special purposes, to a height A, K, of say ten to twelve feet all along the side, and the glazed portions are K N W. Thus the rays of the sun entering the studio in the direction indicated by the arrows, fall upon our artificial cloud or whitewashed wall, W B, which wall, under the circumstances, then gives the chief light for the illumination of the sitter at H.

Into minor details it is not necessary to enter. Of course the studio, as at present, will have to be boarded at the opposite ends also along the roof N W, and the side N K, for a short distance from the ends. Blinds for regulating the major light should be of neutral or dark tint, and movable along the face of the wall W B; blinds also near the glazed portions of the studio will be useful. Incidentally it may be mentioned that if A be a garden wall with a street on the southern side at R, that wall can be raised to K, and a good studio built at A B, without enabling boys in the street to make remarks for the calming of the minds of sitters, for street boys not being ten or twelve feet high in these latitudes, will be unable to see into the studio. It would be difficult to build upon the ground a good present-day studio if there were a brick wall and street to the south, and a high house to the north. If the glazed roof had the pitch K W, the studio might do nearly as well, and would shoot off snow capitally. This kind of lighting might also be obtained by building a studio of the usual Noah's Ark shape, and taking the chief working light from the whitewashed side of a dwelling house to the north, but in the preferable lean-to studio pictured, a lower roof and a whitewashed house-wall outside and above it, would not give as good lighting, because the light from the outside wall would fall upon the glass roof at such a grazing angle as to be largely reflected off outside, without entering the studio at all. The boarded side K A might be made of large sliding partitions to be pushed back into the two ends of the studio, and then expose a glazed surface, so as to take direct light in from the south upon those winter days during which the photographer is glad of any light he can get.



Peradventure those portrait photographers who have taken special notice of the extent to which exposures are shortened when the northern sky is filled with clouds, illuminated by the sun, may be able to make some kind of guess as to the extent to which studios of the kind now suggested may expedite exposures, and lengthen the average photographic working day, remembering also that the whitewashed wall presents a more uniform white surface than do masses of cloud. In the remarkable weather we have had for the last six weeks of almost unbroken sunshine, I have noticed that there have scarcely been any bright clouds, at least within a circle of a mile or two of the Crystal Palace, for being engaged in some new investigations in relation to gelatine emulsions, I have specially noticed the absence of clouds when frequently out of doors trying plates. Had portrait photographers had a white wall to the north, instead of the grey haze of an average cloudless London sky they would have received even better light in the studio than during April last. Some comparative experiments on the light from the northern sky and the light from a northern whitewashed wall, made with the sensitometer of Mr. J. B. Spurge, of London, which is one of the most accurate instruments we possess in photography, would be exceedingly useful. They should extend over a considerable length of time, and be made under different conditions of weather and elevation of the sun.

Having raised the major question before you—who know so much more practically about glass studios than myself—whether photographic glass-houses should not be glazed on the south instead of the north, and have an artificial reflector and diffuser, it is not desirable to-night to go into minor details about studios. Many of those in existence are too short. There are reasons in portraiture, as in landscape work, why more pleasing results can be obtained by using lenses of longer focus than usual; in fact, if a photographer had light enough and a studio long enough, there is much to be said in favour of his using single combination lenses of long focus for portraiture. Supposing the studio to be built of glass and wood, there is much to be said in favour of making its walls and roof double, with an air-space between; it would be much warmer in winter, and would economise fuel. Some studios are built in this way in St. Petersburg. There are considerable advantages in the use of iron instead of wooden bars for glazing. The developing-room should not be a small death-trap, but, when possible, a good-sized room in the adjoining dwelling-house, and fitted up as a laboratory. When, however, it is built as part of the studio, it should be a large room at the opposite end to that occupied by the sitter, and the door should so open that the camera can be used from inside the developing-room, when it is desirable to place it at an exceptionally long distance from the person to be photographed. All these, however, are matters which have previously been publicly considered, but the major problem mooted in this paper is new so far as I know, and I have recently made some search into the literature relating to glass studios. In photography it is dangerous to say that anything is new; and whether the problem before us is or is not new matters little so long as it brings forth in the discussion from your stores of knowledge some information which will be useful to the public.

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* A paper read before the London and Provincial Photographic Association, May 11th, 1893.

Retouching.

BY E. C. MORGAN.

(*Continued from page* 320.)

THE cost of materials necessary for retouching need not deter any one from commencing. A penny pencil, or, if the price is no consideration and you are inclined to be luxurious, say a fourpenny Faber or Hardmuth; some arrangement in the nature of a retouching desk to support the negative; and a little medium that can be made up for a few pence are all that is absolutely necessary.

The pencils I generally use are Hardmuth HH or HHH leads in screw holder. These or Faber's best pencils are very even and free from grit and take a very fine point without breaking. They may be obtained in almost any number of H's, according to hardness, and perhaps a beginner would find it easier to get on with a rather harder pencil at first, but a softer pencil saves time when the touch has become light enough to use it. When you have got the right sort of pencil the next thing is to get the right sort of point on it. This is one of the first difficulties of the beginner. An extremely fine point is absolutely necessary for such delicate work, and it is worth taking pains to obtain. I make a point about an inch, or rather longer, tapering down regularly from the thickness of the lead to the sharpness of the finest pointed needle.

The quickest way to sharpen is to rub down first with fine sand paper and finish on a piece of ground glass or opal glass. The gelatine or varnished surface of a negative is too smooth to work upon and offers no bite to the pencil; it is necessary to prepare it in some way. To my mind the most comfortable surface to work upon is obtained on a good hard varnish by grinding the surface with pumice powder. This give a luxurious surface—compared to the usual surface given by a medium.

The varnish must be fairly tough and well baked after negative is varnished. The grinding down must be done with some care, or there is a danger of scratching or cutting a hole in the negative especially if the pumice is not fine and free from grit.

A little of the pumice should be taken on the tip of the finger and rubbed carefully on the parts to be worked upon. With a little practice any surface can be obtained to suit the subject, from a rough surface with a tooth, like drawing paper, to a fine surface that will only take the pencil in light fine strokes. I much prefer this surface to any other I have tried, but it has, unfortunately, a serious drawback—the density of the part rubbed down is very slightly increased. In retouching a face the very slight increase in density is generally imperceptible and when the negative is thin may be a positive improvement. When the face to be retouched is already on the dense side it is better to use a medium. There are a number of suitable mediums sold for the purpose. The medium I generally use is made of 1 drachm of powdered resin to 2 oz. of turpentine; it is very easy to make, and answers as well as any other.

The disadvantage of mediums compared with a surface prepared with pumice, is that they are generally more or less tacky and tear off the fine point of the pencil and the bite cannot be regulated so conveniently. However the surface is prepared, it will not take the pencil freely enough to bring up quite transparent places in the film to the density of the lights, and when very transparent places have to be dealt with, such as holes in the film, dust spots, and other similar defects, it is best to get them as well covered with the pencil as possible and strengthen to full density with water colours mixed to match the tint of the negative, stippled on neatly with a fine brush.

A retouching desk is required to support the negative in a convenient position while retouching. The desk should be firm and capable of being arranged at an angle so that the light may be reflected through the negative from a reflecting surface arranged beneath. Desks sold for the purpose generally have a mirror for reflecting the light, but unless the light is very weak it is reflected too strongly by a mirror, and white paper makes a much better reflector and has more mercy for the eyes. A good desk will be fitted with frames to hold different sized negatives, and a hood to screen the eyes of the retoucher from light other than that passing through negative.

When we have these few requisites we are ready to commence.

I propose now to show you as well as I am able the usual method of retouching a portrait head with pencil, and afterwards I propose to call your attention to retouching methods more suitable to landscape photography. It is a very difficult matter to illustrate portrait retouching to an audience, and I am trying a novel way. I have here a negative bromide enlargement of a head to life size —that is, an enlargement made from a positive transparency instead of from a negative. It is a choice subject from a retoucher's point of view, and I am sure that the need of retouching is perfectly obvious to everybody who can see it. I am afraid I should exhaust your patience if I tried to retouch it in anything like a finished manner, but if you can bear with me for a few minutes and imagine it is a negative of a small head, and that you are looking *through* instead of on to it, I will show you how I should commence it. When it is necessary to retouch a landscape negative, the need for working upon it is generally from the same causes that call for retouching in a portrait, viz., the modification of tone by colour, the defective rendering of gradations of tone through under or over exposure of whole or parts of the negative, or faulty development, distortion by the lens, etc.

The method of working is, however, different. In landscape it is generally necessary to deal with larger surfaces; the delicate niggled work of the pencil must be exchanged for something broader.

The most useful retouching when broad patches are required to be lightened or darkened, such as an under-exposed foreground against an over-exposed distance, is done on the back or the glass side of the plate with the stump, or with coloured varnishes, or with colour applied with the brush.

There are great advantages in working on the back of the plate. There is no risk of spoiling the negative, as any work put on it, if not satisfactory, can be wholly removed, or can be worked upon or corrected by scraping with a knife, and besides the retouching being separated from the printing surface by the thickness of the plate, prints softer and permits of rather coarser working. Suppose we have a tree-trunk in a foreground which is rather under-exposed, and which before the distance and denser parts of the negative are printed has darkened into a black stripe without shape or rotundity, it is an extremely easy matter to work upon it from the back of the negative and make it print as light as desired to bring it into proper tone with the rest of the picture. This can be done by coating the back of the negative with matt varnish or covering it with papier minéral (a transparent paper sold for the purpose), and stumping a tint over it with lead. If, however, it is necessary to make a very decided alteration, sufficient density cannot be got with the lead, but with tinted varnish a black object can be modified to numberless tints—to white if necessary.

The varnish may be made up with collodion and thinned with ether, and tinted to the required density with a few drops to the ounce of a strong solution of aurine.

Pour it over the back of the plate so as to cover the part to be modified, and as soon as it is dry scrape it away where it is not required. The same plan may be adopted to help parts of a negative too dense to print.

Take, for instance, the gleam of sun on water. Very frequently the negative will print with a hard, white, chalky light, omitting altogether the delicate tones that approach the high light. Although they are apparent in the negative, the picture would be over-printed before they were printed out.

If, however, the negative is varnished all over the back with a suitably tinted varnish, and the varnish over the light removed by scraping with a knife, the difficulty would be overcome. This method of treating a negative is extremely simple, and I think can be used with great advantage and effect by every landscape photographer. I do not mean in order to make poor negatives presentable, but there is hardly a negative produced that could not be made more truthful and more beautiful by judicious and intelligent retouching. It puts in our hands a power akin, although remotely, to the painter's, who can arrange the tones of his picture according to his feeling and judgment.

In conclusion, I have to thank you for the attention you have given me. I have tried to present the subject in such manner that those of you who have been deterred from practising retouching, either through doubt of the advantages of the work or of its supposed difficulty, may be induced to make an attempt to master it, and may have the information necessary for a proper start to be made. If I have omitted any detail of the subject necessary to know, or any further information is desired on the points I have mentioned, I should be very pleased to supply it in answer to your questions.

Home-Sensitised Paper.

By G. Ardaseer.

As in nearly all the printing processes the paper is capable of being prepared at home. It is necessary for me to limit my remarks to two only of these processes, viz., the preparation of sensitised albumenised paper, and that of matt-surface silver paper.

The advantages of the home preparation of these papers are briefly, the power of being able to accommodate the printing qualities of the paper to those of the negative; the utilisation of papers, for photography, which have hitherto been used only for water-colour sketches and the like; and in the case of albumenised papers, the power of subduing to a great extent the glaze. With regard to albumenised paper, it has probably had its day and is not much in vogue now. But as all fashions and tastes seem to recur periodically, so no doubt this paper will again come into popularity.

Now at the outset I may state that the process of coating the paper—usually one of smooth surface—with albumen and its proportion of salting ingredient is troublesome and somewhat difficult at first. Moreover as I do not anticipate that any of you will do more than try it I will give merely the main lines of procedure. Presupposing that you have selected your paper and settled which side of it you are going to coat—for at times a good effect is obtained at on what is usually called the "wrong" side of the paper—the next thing is to prepare the salted albumen. For experiment on a small scale we will take one fresh egg, break it carefully into a cup, and strain off the yolk, thus removing the germ. Now add to this albumen 15gr. of common salt in fine powder, and with a whisk or American egg-beater, beat the albumen up to a white froth. Leave this to settle for twelve hours, and then it will be found to have subsided into a clear liquid with a scum on top. Carefully strain the liquid into a dish slightly larger than the paper to be sensitised. Now as practical details in a paper of this sort are everything I would point out to you the most suitable size of the paper.

If you are desirous of printing from half-plate negatives I would advise coating and sensitising sheets twice that size, and for these reasons—first, econonomy of time, and next, facility of manipulation. The whole-sized sheet (22 by 17 in.) requires, of course, a dish to take it, and also a great amount of care and skill to coat it evenly and successfully. Smaller sizes are more easily handled, and again require smaller dishes. Now lift the paper up by the opposite corners, and allow the centre of the paper to touch the surface of the albumen, lowering the two corners with a slight sliding motion; of course, coating the selected side.

To be sure of this, make a diagonal pencil mark across the rejected side. The paper should be slightly damped before floating, as it then takes the albumen more evenly and is less liable to air bubbles.

Now lift the paper at each end, and see if there are any air bubbles; if so, these must be broken with a card, small brush, etc., replacing the paper on the bath. After a minute or so, remove the paper and place it to dry, suspended at two corners by clips on a *string*. Do not use *wire*, as particles of metal fall on to the surface, and result in black spots.

If the glaze from pure albumen is too brilliant—and it is rather so—dilute the albumen with one-third to one-half its bulk with water. When dry the paper is ready for sensitising.

With regard to the effect of a larger proportion of salt I will speak later on.

To prepare plain or matt-surface paper the paper is immersed in a salting solution, a good formula for which is—

Chloride of ammonia	200 gr.
Citrate of soda...	20 „
Water	20 oz.

If, however, the picture is required more on the surface, it is well to size the paper first, either with boiled arrowroot brushed over with a Blanchard brush, or with a weak solution of gelatine. In either case, however, the gelatine or arrowroot (previously boiled to transparency) may be added to the salting solution, and thus two processes done in one. I find 100 gr. of arrowroot boiled like starch, and added to the 20 oz. of salting solution, sufficient, or a like quantity of gelatine. This salted paper keeps indefinitely.

Now for sensitising. The bath is composed for the above strength salting solutions of 60 gr. of nitrate of silver to 1 oz. of distilled water. This is filtered into a clean porcelain dish, and the paper is floated on it by yellow light for one to two minutes; it is then slowly removed and hung up to dry, and when dry is ready for printing. Surely nothing can be much more simple, and the results are certainly equal to those obtained on commercial paper.

Now with regard to the strength of solutions the general rules are: (1) That a strong salting solution necessitates a strong nitrate bath; and (2) a paper sensitised on strong baths gives in many cases violent contrasts. We see, therefore, that by increasing the strength of our solutions we may be able to get a plucky print from a more or less weak negative, and *vice versa*, by using weak solutions we can get a harmonious print from harsh negatives. I had wished to bring down examples to illustrate these prints, but unfortunately I have been unable to prepare them. However, I may point out some of the common defects and their probable causes.

A marbled appearance on the surface of the paper indicates that it has been removed from the sensitising solution too soon, or that the solution is too weak. As the strength of the solution of nitrate of silver is decreased each time it is used, it is well to occasionally test it with the argentometer. This I have brought with me.

Explanation—And if the solution is found to want more silver, this must be added to bring it up to strength required. Of course, the argentometer being constructed for pure solution of nitrate of silver in water, when paper has been floated and impurities thus introduced, it does not register accurately, and allowance must be made for this in the direction of adding silver to a much used bath until it indicates more on the argentometer scale than say 60 for a 60 gr. bath.

Again, white spots more or less circular are the result of air bubbles which have not been detected or dispersed while the paper was being sensitised.

Red spots which will not change colour in the toning bath are caused by touching the face of the print with the finger, which has left an impression of human adipose tissue, otherwise called grease.

If the prints are weak and slaty in colour before toning, either the negative is in fault or the paper has been too weakly sensitised. Yellowness and spottiness are also caused by carelessness in the subsequent toning and fixing processes.

A sensitising bath I must not fail to mention, if black tones are required, even without toning, is the ammonio-nitrate of silver bath. This, however, is only suitable for matt-surface prints, as it dissolves albumen, and cannot be used for paper prepared with that substance. Again, it should not be used for floating the paper, but should be applied with a brush. To prepare 1 oz. of it take 60 gr. of nitrate of silver, and dissolve in ½ oz. of water. When dissolved, add strong solution of ammonia, drop by drop, stirring mean while with a glass rod. A brown precipitate first forms, but is gradually redissolved on addition of more ammonia. When it is just *not* all redissolved, *i.e.*, the liquid is still slightly turbid, cease adding ammonia and add water to 1 oz.

In these few remarks I have purposely refrained from theorising in any way, having found that theory with young amateurs is, as a rule, "more honoured in the breach than in the observance." Moreover, my previous experiences in attempting to enlighten gentlemen of this club on the subject of theory in any shape or form have generally resulted in driving them to desultory conversation, or to a minute and searching examination of the contents of their tumblers. However, as we are a growing club one or two members might like to have a word or two on the differences which should be observed in the strength of solutions according to their mode of application. I will be brief, and simply state that for albumenised paper, both solutions being applied by floating, the nitrate bath should be about six times as strong as the salting bath, and the time of application should be twice as long. If, however, it is *floated* on the salting bath and *brushed* with the nitrate, the latter may be twelve times as strong, *i.e.*, a 120 gr. solution.

If the paper is salted by total immersion and then *brushed* with nitrate, the proportions are as 30 of nitrate to 1 of salt, and this is usually secured by reducing the strength of the salting solution, so as to keep the nitrate at 60 gr. to the ounce.

To sensitise rough papers, as Whatman's, etc., it is necessary to apply both solutions by brushing, as floating is most troublesome and unsuccessful.

As regards the brushes to be used, I recommend either *Blanchard's* or *Buckle's*.

And lastly, gentlemen, if any of you have a predilection for any particular chloride, remember that 100 gr. chloride ammonium = 109 gr. common salt = 228 gr. chloride of barium

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*Read before the Richmond Camera Club.

A Day with the League.

BY THE MAN ABOUT TOWN.

To the ears of the uninitiated the word League will perhaps come charged with great significance, bringing, as it does, in its train thoughts of murder, rapine, and moonlight outrage. The League, however, that it is proposed on the present occasion to bring to the notice of the reader is not a mysterious Nihilistic Brotherhood, the members of which think nothing of wading ankle-deep in "gore," but a Society banded together for the good of our toiling millions, and whose watchword is "Peace and good-will to all men."

The National Sunday League has lately become such a popular institution, its regular Sunday outings during the summer months have so increased in public appreciation, that a few remarks pointing out how these excursions may be of advantage to Amateurs in search of pastures new may therefore not be out of place. A considerable number of London photographers are already aware of the special facilities afforded by these cheap excursions, the tripod and bag being a familiar sight at every trip taken by the Leaguers. There is, nevertheless, still a deep-rooted prejudice against these excursions in some instances existing, the idea prevailing that because the excursions are cheap the "rowdy-dowdy" element patronise them, and render the day hideous, and the night worse, with their caterwauling and their obtrusive eccentricities. The writer, too, was of the same opinion until he obtained practical proof to the contrary.

A trip to Seaton, on the borders of Devonshire, was announced, and he resolved to make one of the party. He started in the early hours of the Sunday morning quite prepared to endure for a time the noisy companionship of sundry "'Arries" and "'Arriets" of the "Brighton-and-Hampstead-Heath-on-a-Bank-Holiday" class. He was never more mistaken in his life than when, on reaching the platform at Waterloo Station, he found a most orderly and well-behaved crowd of people, respectable old gentlemen, well-to-do artisans and their wives, and others, all quietly waiting for the first train that was to carry them 150 miles away from the smoky metropolis and leave them to ramble amidst the rural charms of the hills and dales of Devonshire. The only conclusion that could be arrived at for the non-appearance throughout the whole of the day of the "Knocked 'em in the Old Kent Road" gentry was that 'Enery 'Awkins does not see the fun of spending 5s. in a railway fare, but would rather by far squander that amount by liquidating his thirst, for he is influenced by the gallons of "four-ale" he can thereby obtain.

The journey occupied altogether a little over four hours, so it will thus be seen that good time is kept by the officials, and the whole day is not taken up in travelling alone. The writer's fellow-travellers comprised a son of Mars and his brother (who were going to pay the old folks at home a short visit and spend a few hours once more amidst the scenes of their childhood), a lady who was also going to see some relations, and one or two ordinary individuals bound for a quiet day's enjoyment and change of air.

Seaton is a rather straggling seaside town which is gradually being "developed," chiefly by the railway excursions. When the League made its first trip to this place several thousand Londoners came down. All the food in the town was speedily eaten up, and a great Oliver-Twist-like cry arose for more, which, however, was not forthcoming, the native commissariat department never dreaming of such a demand upon their resources. The hungry travellers inundated the outlying villages, causing famine wherever they approached. Of course, after this the people of Seaton made ample provision for the demands of future excursionists.

There is not much to be done photographically at Seaton. A view of the cliffs at Beer may be taken from the beach, and then we must away up country to Colyford and Colyton, two pretty villages about three or four miles out. There is a curious old church in Colyton which the inhabitants stoutly affirm to be *the very oldest* in England. It must be remembered, however, that there are in different parts of the country various churches stated to be *the very oldest*, so that the native assertions on this point should not be too implicitly believed. The proprietor of an inn near the church observed us at work with the camera, and he at once came out and became very communicative. He had a manner with him that was refreshing and peculiarly his own. He informed us in the course of conversation that he had in his possession a painting of the church executed by an artist eighty years ago, adding in his quaint style, "If *you* like, *I'll* show you, if *you* like, *you* know!" We were conducted by our friend into his house, and were there shown this wonderful painting, which we of course duly admired. It was clear our host thought a great deal of it. He no doubt considered it far superior to any of the works of the Royal Academicians; and as he stood gazing lovingly at it he murmured in an enraptured tone to his son, who was standing by his side: "Ah! Frankie, my boy, after *I'm* gone, that's *yours*, my boy; no one else must have *that*; Frankie, my boy, *that's* yours!"

When we said good-bye to our affable friend, he stated that if any one wished to stay at Colyton and wanted a guide to the places of interest round about, he was *the* man.

There are some pretty cottages in Colyton that attract the eye of the photographer, and a view of the village itself as it is seen spread out in the valley beneath may be obtained from the top of one of the adjacent hills. There is work to be done too at Colyford, and at Axminster and Lyme Regis, both of which places can be investigated by the excursionist; and also in the village of Beer, which is situated about a mile the other side of Seaton. There is plenty of scope for hand-camera work at Beer, a celebrated flock of rams being one of the features.

The first train to London generally leaves Seaton about 6 p.m., and a good run of four hours brings us back again to Vauxhall or Waterloo.

In conclusion it may be pointed out that any enthusiastic amateur who has not yet taken advantage of these Sunday League excursions might profitably avail himself of the opportunities thus afforded him; and that with such diversity of scenery as will be met with on different occasions at the various places visited—such as Corfe Castle, Winchester, Isle of Wight, Cromer, etc.—he will find ample scope for the development of his photographic talents, and he will reap a harvest of negatives, some of which may earn for him a medal at a future exhibition.

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Holiday Resorts and Photographic Haunts.

BRIGHTON.

"BRIGHTON!" someone exclaims; "Pooh! what's the good of going there?" "Bah!" ejaculates another, "you might as well stay at home; there is no work to be done at Brighton!"

It has become quite the thing nowadays to declaim against Brighton as a holiday resort, on account of its being so much like London, but it is sometimes forgotten that, in addition to its remarkable similitude to the great metropolis, from which it derives its cognomen of "London by-the-Sea," it possesses one of the best features of London life—*i.e.*, facilities for obtaining easily everything that may be required. You have not here, for instance, to send ten miles across country for a boot or stay-lace.

In the second place no one now will assuredly have the temerity to deny that the Brighton air is beneficial and rejuvenating, when we have it from no less an authority than Mr. Gladstone that such is the fact, the Premier having made Brighton his training quarters whilst preparing for the fray on the introduction of the Home Rule Bill.

The only objection therefore that remains to be disposed of is that there is nothing to be photographed anywhere near the place, and even should there be anything no facilities are afforded for successful manipulation of the camera. It is true that Georgie Grossmith the Great was some time ago prevented from going on to the pier with his camera, some absurd regulation of the Corporation being enforced; but it is now intended to be shown that the amateur will find plenty of work in and around Brighton, and that he will be courteously assisted by any of the officials, if he goes to work in the right way.

We will first deal with Brighton itself. Of course it does not require a great amount of artistic capability to secure views of the Aquarium, Old Steyne Gardens, the Parade, the Beach, etc. Such views have become somewhat hackneyed, owing to the many, many times they must have been taken by amateurs during their novitiate; but on a windy day, when the sea is remorselessly lashing the beach, some good wave studies can be obtained near Hove, as to which the work of some of the members of the Hove Camera Club can testify.

It is not generally known that in the Brighton Museum, which is situated by the side of the Pavilion, there is a splendid inlaid and engraved ivory and ebony cabinet which was designed and executed in Milan to the order of the Archduke of Austria. This cabinet is unique both in beauty and design, the artist having devoted five years of continued labour in its execution. The engravings on the panels represent portraits of the most celebrated Italian artists, poets, painters, and sculptors. Written permission to photograph this cabinet can be obtained without any difficulty from the Town Clerk at the Town Hall. The curator is an exceedingly affable gentleman, and will render every assistance to the photographer. There is a glass roof to the building, and one minute's exposure at *f*/32 at 10.30 on a day in the middle of September gave a good negative. There is a small statue of "Nausicaa" in the same room which some may also consider worthy of a plate.

The Pavilion, though to a certain extent picturesque on account of its Turkish appearance, can only be properly taken from the roof of an adjoining building

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About a mile along the road that leads to London is Preston Park which is easily accessible by any of the busses that continue regularly throughout the day to pass the park gates. No permission is required to use the camera in the park, but the keeper will probably come up to observe "what the little game is." A plate may be used with advantage in a pretty lane called "Lover's Walk," which is lined on each side with trees, forming a natural continuous arch. The terra-cotta clock-tower in the Park itself will require careful handling and an Iso plate, if anyone should think it worth the trouble; but it should be here stated that the tower has not yet become hallowed and rendered sacred by time, having only recently been erected at the expense of an opulent citizen.

The Devil's Dyke is worth a visit. If the half wild man (who wears his hair hanging down his back and has the mysterious legend painted on his coat "Ally Sloper's Half Holiday") that is to be met with in the middle of the journey, and who has been cadging, for many years, from the occupants of the brakes that pass incessantly up and down, could be persuaded to sit for his portrait, it would make a good lantern slide.

Worthing, and Bramber with its old Castle and old cottages, are easily accessible from Brighton, and a pleasant holiday may be spent in visiting the before-mentioned and other interesting places by anyone putting aside any present prejudice upon the matter and staying for a short period at London-by-the-Sea.

Reviews.

Half-holidays with the Camera. By Bernard Alfieri. Published by W. B. Whittingham and Co., 91, Gracechurch street, E.C.

Londoners are too often inclined to think that there are no picturesque spots which it is possible to reach on Saturday afternoons; the majority of us are apt to overlook the charming little spots near us, and rush off to some regulation show place. Mr. Alfieri has, however, been content with those places within the reach of any hard-worked city man who may wish to utilise a half-day for photographic work, and in the book before us gives a capital guide to the country round town. Thank heaven, he does not give us particular and precise information of everything there is to take, merely suggesting possibilities. In this respect, doubtless, the book will be disappointing to many, for, unfortunately, there are some who would like brass sockets let in the ground for the points of their tripod legs, but to the photographer who would like to, and can use his brains, and his artistic selection, the book will be invaluable, and for the secretaries of societies desirous of getting up "outings" it can be thoroughly recommended.

The book is well printed and illustrated with numerous pen and ink sketches and a few process blocks of photographs. Even to the non-photographer the book will be interesting, as Mr. Alfieri possesses considerable command over his pen and word-painting.

The A B C Guide to the Making of Autotype Prints in Permanent Pigments. By J. R. Sawyer. Published by the Autotype Company, 74, New Oxford Street, W. Price 2s. 6d.

At the present moment, when so much attention is being paid to the carbon process, this manual is especially welcome. For years the former edition was the sole standard text-book in English on the subject, and now revised, and, brought up to date, with all the latest improvements embodied in it, this new edition will take rank with its predecessor. As to the reliability of the information there is no doubt, Mr. Sawyer having been for many years director of the Autotype works, and also the inventor of numerous improvements in minor details.

The frontispiece is an exquisite sepia-toned reproduction of Col. Gale's "Sleepy Hollow" on toned etching paper, which is alone worth the price asked for the book.

Catalogues.

C. C. Vevers, 12, Market Street, Briggate, Leeds.

Mr. Vevers sends us his '93 summer supplement list, which contains several novelties, of which the Veveo and Lola hand-camera, new negative preservers, and "Little Sandow" four-fold tripod are specially worthy of notice.

The Thornton - Pickard Manufacturing Company, Altrincham, near Manchester.

This firm sends us the new edition of their catalogue, which contains as novelties the "focal plane" shutter with adjustable slit, which enables one to obtain exposures of from 1-20th to 1-1000th of a second. They have also introduced a patent camera stand with automatic locking joints, which is reasonable in price, and seems a great improvement.

Exhibitions.

ASHTON-UNDER-LYNE PHOTOGRAPHIC SOCIETY.

From 12th to 15th inst the society held an exhibition of over 100 photographs of the land of the Broads. The views were lent by the Great Eastern Railway Company, who have a great number of these views in their railway carriages. The photographs were inspected by a large number of members and friends with very great interest, and many expressed their desire to visit the places depicted. Many also said they should visit Norfolk with the camera, so the society may expect to see more views before very long from that most delightful county.

Societies' Notes.

A photographic section has been formed in connection with the Craven Naturalists' and Scientific Association, Skipton. The first meeting was held on 14th ult., when rules, etc., were drawn up, and it was decided that meetings should be held on the first Friday in each month. Mr. Thos. Geldart, of 18, Salisbury Street, Skipton, is the Hon. Secretary.

The Guildford Photographic Society held a conversazione on 17th inst. Lantern slides were shown at intervals, and vocal and instrumental music was also given. Messrs. Beck, Taylor, Taylor and Hobson, Butcher and Son, Marion, Cresco-Fylma Co., and Paget Prize and Imperial Dry Plate Cos. sent exhibits.

The following are the rules and regulations of the Photographic Society of Great Britain Exhibition, 1893 :—

Photographs.—Each exhibitor must fill up the entry form supplied by the society, and send it to the Secretary, Photographic Society of Great Britain, 50, Great Russell Street, London, W.C. At the back of each frame must be written the name and address of the exhibitor, with the title or description of the photograph, and the number (if there are more than one) to which it refers in the entry form. Each frame or picture may have the exhibitor's name, and the title of the picture, neatly inscribed, and this only. Oxford frames and photographs already shown in any public exhibition within the London postal district will not be admitted. Negatives and transparencies, photo-mechanical prints, photographs of purely scientific interest, and photographs coloured by scientific or mechanical means will be admitted. Photographs coloured by hand will not be admitted.

Lantern Transparencies should be fitted in a frame to stand upon the table; if not removable, duplicates should be sent for exhibition in the optical lantern. Lantern slides will be eligible for award only when both the negatives and slides are the work of the exhibitor. With any work produced by a special process of the exhibitor, information as to particulars should be communicated.

Photographic Apparatus.—Each exhibitor must fill up the entry form supplied by the society, and write a concise description of each piece of apparatus. A removable card must be attached to the exhibit containing the name of the exhibitor and the number to which it refers in the entry form. Attention is requested to this regulation, as, without it, the description of the apparatus may not appear in the catalogue. The exhibitor should fasten on each exhibit a small adhesive label containing his name only. Apparatus and appliances that have been already shown at London exhibitions may be refused, and also those that do not contain some points of special interest (to be mentioned by the exhibitor on the entry form).

Charges for Exhibiting.—The privileges mentioned below are accorded to members of the society whose subscriptions are not in arrear, and are granted to them in their individual capacity only. A firm or company exhibiting in their corporate capacity is treated as a non-member, although one or more members of the firm may be members of the society.

Charges for Wall Space.—No charge will be made to members of the society, but to non-members a charge of one shilling per square foot, and to members of affiliated societies a charge of sixpence per square foot will be made for wall space. To obtain this reduction the entry form must be accompanied by their membership voucher bearing the affiliation stamp, the minimum charge in each case being five shillings. Lantern slides and transparencies will be charged as for pictures. Twelve lantern slides are calculated as equal to one square foot. Postal orders to pay for the wall space required must accompany the entry form; should any of the photographs not be hung the due proportion of the amount will be returned. The charge for wall space to those exhibitors who may be proposed as members of the society before the end of the year will be remitted, and the amount paid credited to their entrance fee and their subscription for 1894.

Charges for Apparatus.—The apparatus will be under the personal supervision of a competent attendant, who will be ready to furnish explanations to visitors during the whole time the exhibition is open. The charge to members will be at the rate of half-a-crown for each piece of apparatus or square foot of table or floor space (whichever is greater), with a minimum charge of five shillings. The rate to non-members will be at five shillings, with a minimum charge of ten shillings. These charges must be enclosed with the entry form, or the exhibit will not be received. If a case of apparatus is accepted for exhibition, each item contained in it will be treated as a separate exhibit, and so catalogued and charged for, except when the items naturally form a single exhibit; as, for example, a hand-camera, including the camera and lens, or an apparatus with parts of it shown separately to illustrate its construction.

Price Catalogue.—A list containing the prices of pictures and apparatus to be disposed of will be laid on the table. It is desirable that exhibitors should state the price of their pictures on the entry form, as frequent inquiries are made respecting the prices of framed and unframed copies. Exhibits not priced will be marked in this catalogue as "not for sale." Ten per cent. commission will be deducted on sales.

Foreign Exhibitors.—Foreign exhibitors are invited to contribute. The society will pay the carriage of photographs on the return journey, and provide frames or portfolios during the exhibition for photographs approved by the judges. There will be no charge for wall space.

Reception of Exhibits.—Exhibits sent in packing-cases must be carriage paid, and addressed to the Photographic Society of Great Britain, care of Mr. I. Goodstein, 7, Great St. Andrew's Street, Bloomsbury, London, W.C.

Packing-cases should arrive by Monday, September 11th, at the latest, in order to ensure the delivery of the frames at the Gallery before closing time. No packing-cases can be received at the Gallery. Exhibits, including pictures, negatives, transparencies, lantern-slides, apparatus, and appliances, sent by hand, will be received at the Gallery, 5A, Pall Mall East, only on Wednesday, September 13th, until nine p.m., after which time and date no exhibit can, under any circumstances, be received for competition.

Removal of Exhibits.—Exhibits received in packing-cases will be repacked and despatched directly after the close of the exhibition. Exhibits left at the Gallery by hand must be fetched away on the day appointed, due notice of which will be sent to the exhibitors. Particular attention is requested to the removal of exhibits on the day appointed. If not taken away then, considerable expense will be incurred in removing them from the Gallery to be warehoused. This expense will be charged to the exhibitor. Exhibitors can, by giving instructions to the Assistant-Secretary, and paying the cost, have their pictures packed in a case and sent to destination by carrier.

Conditions.—It is to be distinctly understood that the sending of exhibits signifies acceptance by the exhibitor of the decision of the council upon all matters connected with the exhibition as absolute and final. The council do not hold themselves responsible for any damage that may happen to the exhibits whilst in their custody, but every precaution will be taken to ensure their safety and prompt return to the owners at the close of the exhibition. To avoid damage to other frames, it is requested that all frames have sunken backboards, with the fastening nails not projecting, and the backs covered with thick brown paper.

Optical Lantern.—Photographic lantern-slides will be shown by means of the society's optical lantern during the exhibition. The loan of slides for this purpose is invited; they must not exceed 3¼ in. in height, and, to enable the committee to select and arrange them, must be delivered at the Gallery not less than three days before the evening of their being shown in the lantern. If sent by carrier, they should be addressed to the Secretary, Photographic Society, 5A, Pall Mall East, S.W., and they will be returned within seven days of their exhibition.

Blank entry forms and any further information respecting the exhibition, apparatus, and lantern-slides, also nomination forms for membership, can be obtained from the Assistant-Secretary, P. S. G. B., 50, Great Russell Street, London, W.C.—CHAPMAN JONES, Hon. Secretary.

* * *

THE Amateur Photographic Society of Madras will hold the first open exhibition of photographs in Madras in December, 1893. It will remain open for a period of one week. Photographs must in all cases be mounted and framed, and all rings and strings should be removed from the frames. All exhibits must be in the hands of the Hon. Sec. by December 1st, and all charges for carriage to and from the exhibition must be paid by the exhibitors. Every care will be taken of exhibits whilst in the Society's possession, but the Society will not be responsible for any damage. Instructions for return or disposal of exhibits should be sent with them, and will be carefully attended to. Exhibitors may put a price upon their exhibits: the prices will be shown in the catalogues, and the sums realised, less ten per cent. which will be deducted for the Society, will be remitted to the owners as soon as possible after the exhibition has closed. All exhibits should be clearly addressed to the Hon. Sec., Amateur Photographic Society of Madras. The exact address will be advertised later on in ample time. In all classes, photographs by any process will compete on equal terms, the judging will be for results only. No exhibitor will be awarded more than one gold, one silver, and one bronze medal, but should any exhibitor be disqualified under this rule from receiving a medal, he will be given a Special Certificate to that effect. In Classes B and C it is expected that the entire work will be done by the exhibitor without assistance. Intending exhibitors are requested to advise the Hon. Sec., as early as possible, of the probable number and size of their exhibits, so that ample room may be provided. A list of titles etc., for the catalogue should reach the Secretary not later than November 20th; and it should be stated for which prize each exhibit is sent in for competition. *List of Prizes.*—Open to general competition: Gold medal (value Rs. 150), presented by H.H. the Hon. Maharajah of Vizianagram, G.C.I.E., for the best photograph in the exhibition, figure subject; gold medal (value Rs. 100), presented by H.H. the Rajah of Ramnad, for the best photograph in the exhibition other than figure subject; gold medal (value Rs. 100), presented by the Rajah of Devarakota, for the best enlargement in the exhibition; silver medal, presented by C. Michie Smith, Esq., B.Sc., President of the Society, for the best example of photography applied to science; silver medal, presented by H.H. the first Prince of Travancore, for the best landscape photograph; silver medal, presented by the Hon. Sec., for the best set of twelve stereoscopic transparencies. Open to the World (Class A.), Society's prizes: silver medal for best set of four landscapes; silver medal for best set of four figure subjects; silver medal for best set of twelve lantern slides; silver medal for the second best enlargement; bronze medal for second best of each of the first three subjects. Open to amateurs only (Class B): silver medal for the best photograph, any subject; bronze medal for second best photograph, any subject; silver medal for best set of four figure subjects; silver medal for best set of four other than figure subjects; bronze medal for best set of six lantern slides; silver medal for best enlargement; silver medal for best set of hand-camera shots. Silver medal to be awarded by judges for any exhibit of special merit not included in the above classes. To members of the Society only (Class C): bronze medal, for the best picture produced by a member who has commenced the practice of photography since January 1st, 1893.

* * *

The first of the Polytechnic trips to the World's Fair at Chicago arrived in New York on Friday afternoon last. These trips will be continued every week up to August 5th. The parties travel by the Guion Line from Liverpool every fortnight, and from Southampton every Friday and Saturday by the Inman and Hamburg-American lines. A few vacancies still remain. Full detailed prospectus can be obtained on application to the Secretary, the Polytechnic, 309, Regent Street, London, W.

How I Constructed my Dark-room.*

By A. O. Broadbent.

At our last meeting I undertook to describe the difficulties I experienced in developing, and how I got over them.

Formerly when I wished to develop plates or bromides I had to wait until my family had retired for the night, in order to have the room to myself and to have it in darkness, which necessitated me being up very late, or early—whichever you like to call it—sometimes till one and two o'clock in the morning.

Then again it sometimes happened that I wished to develop during the day. In that case I had to pick out the darkest corner I could find and fudge it up to make a dark-room, causing a great loss of time and often with unsatisfactory results, to say nothing of the sins I committed.

After going on in this manner for a long time I determined to alter it by constructing a dark-room in the cellar. Not being settled at my present abode and the cellar door being under three feet wide, it occurred to me that if I had to change my residence I must make it in such a way that I could remove it without damaging. On that account I decided to make it in sections, which of course entailed a little more trouble.

In the first place I made the two side frames of 1¼in. square spruce, 6ft. long by 3ft. 9in. wide, with halved joints. I then put a rail across, of the same material and size, and 2ft. 8in. from the ground, forming a ledge to support the table. This done, I then proceeded to make the framework for the back, which is similar to the sides, the only difference being that it is 3ft. wide instead of 3ft. 9in. The frame-work for the front is of the same dimensions as the back, with a lintel and doorposts. Having got the frame-work completed I fastened them together at the top and bottom corners with galvanized wrought-iron brackets. I then boarded up the back with ½in. match board, driving the tongues well into the grooves. In boarding up the sides, arrangements had to be made for lighting the room. After nailing on two boards the full length, I then cut two boards for each side 3ft. 6in. long, nailing them from the bottom. I next cut two shorter pieces 1ft. 8in. each, and nailed them on from the top, leaving a space on each side 10in. by 11½in. for the window. The remainder of the sides I boarded up from top to bottom. The window is made of plain glass, fastened in with ribs inside and out. Inside the window I have a frame-work to accommodate two sliding frames, one carrying ruby and the other canary medium. As I mentioned before, I left a space on each side for a window, and, only requiring one, I closed the other with a shutter. If I wish at any time to light up from the right instead of the left side, as at present, I have simply to unscrew the framework and transfer it, the frame-work and shutter being interchangeable. In boarding up the sides, the boards extend beyond the framework 1¼in. to exclude light. The boards at the front overlap the lintel and posts ⅝ in. only, leaving a groove of ⅝in. for the door to fit in. The door, measuring 2ft. by 5ft., was then made, hung and fastened at the top with a wooden button.

The top was then closed in with match boards resting on the framework, and, in order to avoid rheumatism, I boarded the floor with plain flooring boards simply cut to length and dropped on the framework. To light the room I had to get 13ft. of lead gas pipe, one end, with a Bray's burner stuck in with white-lead, passing through a small shelf or bracket outside and at the bottom of the window, after making the remaining length of pipe secure, connexion was made with the gas fixtures, with rubber tubing slipped on the gas bracket. I laid water on by carrying ½in. iron pipe from the watertap up the wall, across the ceiling and passing through the roof of the dark-room to within about 15in. of the sink into the end of the iron pipe. I inserted a small piece of lead pipe, as a reducer to receive a short length of rubber tubing. The water like the gas is connected with the service tap with rubber tube.

The table consists of four ½in. match boards laid on the ledge, which I referred to in making the side frames. Into the table I have let a pneumatic trough for a sink; a biscuit tin would answer as well. I made a hole in the bottom of the trough and soldered on four inches of lead pipe, to which I attached a piece of rubber tube, which passes through the side of the dark-room and dips into a piece of half-inch iron pipe which conveys the waste water to the trough without wetting the cellar floor.

I have a series of four shelves above the table fastened to the back with galvanised wrought-iron brackets. The top shelves I use for my stock bottles, and the lower ones for bottles that are in constant use, and within reach as I sit at the table. Underneath the table I have fastened up an old box with bars down the front, like a rabbit-hutch, to receive my dishes.

The ventilation is carried on by means of ¾ in. holes at the top and bottom, and during the warm weather we have had lately it has been pleasant and cool.

To those who have to put up with makeshifts I believe the arrangement is well worth consideration; in fact, I am so thoroughly satisfied with it that it would require a lot of coaxing or kicking to induce me to adopt the old system again.

In conclusion, I may say that if any of you should think of making a room similar to the one I have described—and I am satisfied that as far as abilities are concerned you would have no difficulty; I myself am not a wood butcher—I would suggest that you see mine first, and, if required, I should be pleased to give any information or assistance that I possibly can.

I did not keep a record of the expenditure, but, as near as I can tell now, I believe that 15s. or 16s. would cover the entire cost, but as I got the timber as I required it I did not feel the outlay so much.

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* Read before the Cheetham Phot. Soc.

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Societies' Meetings.

Aston.—On 18th inst. Mr. J. W. Neville gave a practical demonstration on colouring lantern slides. He opened the evening by recommending the beginner to select the six following colours, viz., crimson lake, Italian pink, verdigris, Prussian blue, burnt sienna, and for very sparing use burnt umber. His profession, he said, had taught him that these pigments were quite sufficient for all ordinary purposes, and from the use of these in his business, he drew the conclusion that they were also sufficient for lantern slides and transparencies. Pale copal varnish was the medium, and as the shadows and half tones were usually present in photographs, broad washes were the chief features in his *modus operandi*. Several slides were then coloured and passed round for inspection, and an impetus to beautify lantern views was certainly given to those present. There was a good attendance.

Brixton and Clapham.—A meeting was held on 16th inst., the President, Dr. J. Reynolds, F.R.G.S., in the chair. Mr. W. Thomas read his paper on "A Photographic Picture, and Some Notes on its Production." The paper, which was an exceedingly interesting one, dealt fully with composition, light and shade, balance, printing-in clouds, printing processes, use of stops, mounting and framing. The lecturer's remarks were illustrated by numerous specimen pictures and blackboard illustrations. Mr. Thomas himself used cold-bath platinotype paper for his pictures, and strongly recommended its adoption by his hearers as being exceedingly simple to use and beautiful in its results. He advised members to lay in a large stock of cloud negatives, and said that great care should be taken when printing-in clouds to see that the clouds were lighted in the same manner as the landscape itself. Considerable discussion took place at the conclusion of the paper, and in answer to a request Mr. Thomas promised to take the members out for a practical lesson in the field, in order that they might put his principles into practice under his supervision. A communication from the P.S.G.B. was ordered to stand over until the next meeting, June 6th, when Mr. S. H. Fry will give a demonstration on the Sandell plate.

Gosport.—On 16th inst. Mr. Belton, of the Paget Prize Plate Company, gave a demonstration on "Printing-out Opals and Plates." The lecturer, in the course of his remarks, handed round specimens to prove the efficiency of the Paget goods, and the rich clear tones elicited much admiration. Mr. Belton toned some opal plates, and afterwards passed some printed-out lantern slides through the lantern. At the conclusion of an interesting and instructive address, Mr. Belton was warmly thanked for the lucid manner in which he had dealt with his subject. During the evening the Chairman presented Mr. T. E. Williams with a silver medal, and Mr. A. Fisher with a bronze medal won in the Monthly Lantern-slide Competition last year. It was announced that the Rev. E. Paske-Smith had been elected to a vacancy on the Council, and that Mr. Reginald E. Green had been chosen Joint Hon. Secretary.

Hackney.—Ordinary meeting held 16th inst., Mr. R. Beckett in the chair. From the question box:—"Wanted, a cure for pinholes." The chairman gave a description of pinholes as absence of films, and silver, dust, airbells, and fragments of glass. Mr. Hensler said he used a deep dish and gave the plate a sharp knock on the side when developing. Mr. S. J. Beckett said Indian ink was about the best thing if pinholes were caused. Mr. Hunter could not dissolve the meta-bisulphite of soda as recommended by Mr. Dresser. Messrs. Nunn and Fenton-Jones had found no difficulty in doing so. Mr. Moore asked how to clear a negative from green and red fog. Mr. Sodeau said Captain Abney recommended to convert the whole of the silver into its haloid condition and redevelop. Bromine water would convert, or ferric chloride. The conversion is to a grey fog, which does not matter much. Mr. T. H. Smith asked cause and cure for iridescent marginal stains on plates. Methylated spirit on wash leather (to rub on plate) will remove it easily. Mr. W. Fenton-Jones then proceeded to open the discussion on "Plates *v.* Films." He spoke of great portability in films and use for carbon work, advantages over plates, good for clouds, as they can print either way, are said to be free from halation. On the other hand, one thing which had done much to retard the progress was faulty emulsions, lightning marks, tendency to curl when developing. Incidentally he said Mr. Dresser had overcome this by the introduction into his developing tray of a square heavy framing, which rested on the rebate and caused films to lie flat. A question that occurred was, when enlarging, will films stand heat? Mr. Sodeau explained an Eastman rollholder, and said he rather favoured films, had easily worked his, said the films were well coated, and by wetting his dish first easily got them to lie flat. Mr. Hensler had taken cut films to New Zealand and found them a great advantage. Mr. A. Barker had some good films, but others were bad. Mr. F. Houghton used them in the Frena with good result, but some of the hits of film had at times blistered or floated off. Mr. Gosling asked, were films advisable for a beginner? Mr. S. T. Beckett said no, and generally objected to films; had 33½ per cent. failures on films to 5 of plates. Mr. Poulson said in larger sizes there was a danger of buckling. Mr. W. Fenton-Jones said he had found films sometimes thin, and gave as a test for thinly-coated plates the holding of one before the flame of gas, and if the flame could be seen through it obviously they were thin. The Chairman said films did not prevent halation entirely.

Lewisham.—Ordinary meeting held on the 19th inst., Mr. A. H. Miles in the chair. The following awards were anounced in connection with the annual print and slide competition:—Prints, landscape, Mr. C. Churchill; moving objects, architecture and enlargements, Mr. E. Eastwood; slides, marine Mr. J. May; landscape and architecture Mr. H. L. Davis. Mr. H. S. Fry then gave an address on the Sandell Plate, which has already appeared in these columns, illustrating his very lucid explanation of the chief advantages of these plates by some very fine 15 by 12 prints, and concluding by answering numerous questions chiefly as to development, which it was pointed out should, in cases of abnormal exposure, be commenced by using a very weak and well-restrained developer to obtain density in the slow lower films, having obtained which the weak developer should be replaced by one of normal strength to bring up shadow detail in the quicker top film.

North London.—On 16th inst., Mr. W. Bishop in the chair, Mr. Herbert Fry lectured on the Sandell plate. A collection of prints from negatives on these plates was exhibited and evidenced that the claims advanced in respect of them were well founded. The long scale of gradation and the freedom from halation were most remarked. Mr. Fry, in reiterating the five-fold advantages belonging to the plate, a statement of which has, more than once, been communicated through "the usual channels of public information," said that the multiple-coated plate was not put forward as the be all and end all of photography. The use of it would not make every novice a medal-taker, and it could be misused. But the introduction of it had put a better tool in the hands of the careful worker than could be obtained heretofore. If anyone thought he could go one better, the sooner he did so the better for photography. Mr. Fry explained the tentative mode of development best adapted to get good results out of the plate, and inveighed strongly against the practice of using any developing solution more than once. The plates could be intensified or reduced in the usual way, but these processes were only necessary when there had been a slip in the development. In concluding, he warned his audience not to follow in the wake of certain experimentalists who advised wilful over-exposure followed by stripping off the top film.

Putney.—The first outing was held on the 13th inst. under the leadership of the Hon. Secretaries, Messrs. Gorin and Zachariasen. The members travelled to Woking, and from there proceeded along the Basingstoke Canal in the direction of Byfleet and the Wey Navigation. As there was a bright diffused light, a number of good negatives were obtained of the beautiful scenery along the route, additional interest being given by the grouping of a few children, which the leaders had previously engaged to meet the party. There was a very good attendance of members, who after their labours thoroughly appreciated the good things set before them at "Ye Olde White Hart" inn at Newhaw.

Richmond.—On 15th inst. Mr. Ardaseer in the chair, the President, Mr. Cembrano, delivered a lecture on "Architectural Photography." He divided the subject into three broad divisions—apparatus, process, and subject. Under the first head, tripods, cameras, lenses, and accessories, such as focussing-glasses, levels, and flash-lamps, were fully dealt with; under the second were considered plates, exposure, and development; while the third comprised hints as to the choice of subject, whether exteriors or interiors, lighting, and pictorial effect. The lecture was of a most practical nature, and by way of illustration some of Mr. Cembrano's well-known architectural pictures were thrown upon the screen, the lecturer remarking that there was no more suitable and effective mode of showing photographs of architecture than through the lantern.

Southsea.—The representative of the Paget Prize Plate Co. gave a very interesting demonstration of their printing-out opals and lantern plates on the 17th inst. After explaining the facility with which the lantern plates were manipulated, using an ordinary quarter-plate frame, and showing the special frame designed by the Company for securing accurate register when printing opals, the operator proceeded to tone and fix a number of plates, both in the combined and separate baths, and the beauty of the results and the wide range of tone obtained were much admired. The plates are dealt with in the same manner as ordinary printing-out paper. It was remarked that the lantern plates, in addition to the variety of tone, afforded special facilities for printing in skies, etc., and members who had tried them spoke highly of their even quality and easy manipulation. A discussion ensued, after which some of the slides were thrown on the screen.

Stockton.—The first outing of the season took place on the 18th inst., by brake, to Wynyard Park, the seat of the Marquis of Londonderry. About fifty plates (ranging from lantern size to whole-plate) were exposed amongst ten members, when the drive home concluded an exceedingly pleasant excursion.

SOCIETIES' FIXTURES.

May 26—HOLBORN (Camera Club).—Lantern Night; the AMATEUR PHOTOGRAPHER 1892 Prize Slides.
,, 26—CROYDON.—Technical Evening; "A Chat on Spirit Photography." Leader, Mr. Pride.
,, 27—HUDDERSFIELD.—"A Search for the Beautiful," by a Novice, with Lantern Illustrations
,, 27—BRISTOL (Camera Soc.).—Excursion to Cathedral.
,, 27—LEYTONSTONE (Camera Club).—Outing to Zoological Gardens. Leader, Dr. W. Pickett Turner.
,, 27—CROYDON.—Excursion to Betchworth and Brockham. Conductor, Mr. A. H. Carter.
,, 27—WEST LONDON.—Excursion to Sudbury.
,, 27—ROCHESTER.—Excursion to Caxton.
,, 27—HACKNEY.—Excursion to Hampton Court.
,, 27—STAFFORDSHIRE POTTERIES.—Excursion to Biddulph and Kaypersley.
,, 27—LEWISHAM (Camera Club).—Visit to the *Arethusa* and *Chichester* Training Ships. Leader, the Hon. Secretary.
,, 27—PAISLEY.—Excursion to Eglinton Policies.

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"**The Camera and Photographic Answers**" for May, with fulpage collotype, has come to hand. It is a cheap pennyworth and decidedly readable.

The Midnight Sun.—The Albion Steamship Company, of Newcastle, have built a fine steam yacht specially for the Norwegian trips, and Messrs. F. K. Hurman and Co., the well-known photographic dealers of Newcastle, have fitted up a permanent darkroom on board, and all photographic materials may be obtained on board.

Photographic Society of Japan.—A regular meeting was held at Tokyo, on Friday, 14th ult., Mr. Edmund R. Holmes in the chair. The following gentlemen were unanimously elected members of the Society:—Messrs. W. Silver Hall, N. Kasuga, S. Kikkawa, W. B. Mason, M. Naito, K. Narahara, and K. Tatsuke. Mr. T. Kiyokawa presented samples of blue printing paper, of his own manufacture, to the Society, and these were distributed amongst members for trial. Mr. B. Munster showed farther examples of the work of J. Carpenter's Opera-Glass camera. These were very beautiful, and greatly admired. Mr. S. Nonogaki sent a couple of pin-hole photographs. Mr. Nonogaki was not present, but it was understood from a letter that he had sent, that he had made the pin-hole plates himself, having read the communication to the Society on the subject by Mr. J. Favre-Brandt. The definition of the photographs shown was so good that it was hardly possible to believe they had not been taken by a lens, but looking at them very carefully the characteristic pinhole "softness" could be seen. Mr. W. K. Burton and K. Arito showed a sensitometer they had been using in an investigation with regard to the power of compensating, in development, for variation in exposure. Long strips cut from dry plates were exposed in this sensitometer, to direct light, were afterwards longitudinally cut in two, and the two halves were shown, proving the power of compensating for exposures varying as several hundred to one. A set of photographs all of the same landscape was shown. The exposures of the negatives, all on the same kind of plate, had been 1½, 3, 6, 12, 24, 28, 96, and 192 seconds. Members were asked if they could distinguish the prints from the negatives that had had the longer exposures, from the negatives that had had the shorter exposures. They were utterly unable to do so.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.

2. Write each Query or Answer on a separate sheet of paper.

3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume.*

4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.

5. The Editor does not undertake to answer Questions by post.

QUERIES.

6087. **Killarney.**—Can private lodgings be got at Killarney? A few hints about this and surrounding district will oblige.—AMATEUR.

6088. **Ever-set Shutter.**—Will one of your readers kindly give instructions for making the above-mentioned shutter?—REMUS.

6089. **Working Plates in Hand camera.**—Will a brother amateur tell a good way of working plates in hand-camera? I want to expose about a dozen plates in succession, plates to be in sheaths.—REMUS.

6090. **Enlarging.**—Can anyone tell me whether it would be possible to enlarge from quarter-plate to 10 by 8 without condensers, by putting ground-glass behind the negative, and burning magnesium ribbon behind that? If it is possible to enlarge in this way, about how many inches of ribbon must I use, with a fairly dense negative and a 5 in. focus lens, enlarging from quarter-plate to 10 by 8 on rapid bromide paper. —F. E. B.

6091. **Walton-on-Thames.**—Can any reader tell me anything about Walton-on-Thames, what places about four or five miles round worth a plate or two, what is the best way to get there when landing from steamer below London Bridge, what line of railway is it on? Please reply at once.—VISITOR.

6092. **Labels.**—Could any brother amateur kindly tell me where I can get labels for boxes of dry plates, setting forth the nature of the contents, printed in three or more languages, so as to facilitate passing them through the Custom Houses on the Continent?—LUBBER.

6093. **Lake District.**—Would any reader be kind enough to give information as to the prettiest and nicest places to go at the English Lakes, and if plates, etc., can be obtained, and best hotels? Any information will be gratefully received.—TRIX.

6094. **Zermatt.**—Any information as to photographic work here will oblige.—J. KEAN.

6095. **Lausanne.**—Any information as to photographic work here will oblige.—J. KEAN.

ANSWERS.

6064. **Photo-Xylography.**—Silver prints on wood.

Gelatine	45 gr.
White soap	45 ,,
Water	5¼ oz.

Soak the gelatine in water five or six hours, then dissolve in water bath. Add soap cut small, stirring well, add powdered alum till froth disappears, strain through muslin, cover block with mixture and a little zinc white, then wipe off to leave very thin film. When dry, apply with badger's hair brush coating of the following—

Albumen	3¼ oz.
Water	2¼ ,,
Chloride of ammonium	67½ gr.
Citric acid	18½ ,,

To make this, whip albumen to a froth, and let it settle, add water next the sal ammonia, stir gently with a glass rod, then add citric acid. Dry the block again, and sensitise with—

Nitrate silver	187½ gr.
Water	3¼ oz.

When again dry, expose under negative. When printed exact shade required, wash in strong solution common salt, wash in water, and fix in hypo. Wash for ten minutes, and allow to dry.

6079. **Iona and Staffa.**—There is much of interest in Iona. The ruins of the old cathedral, nunnery, etc., historical tombs and fine Celtic crosses. The inhabitants themselves, as well as their dwellings, are well worth a few plates. The event of the day is the arrival of the steamer from Oban, when one can get a good shot or two. There are also beach and general landscape scenes. Two "country" hotels. At Staffa there are the caves and Basalt Pillars, with, at times, much broken water. The steamer allows little enough time, and work is far from easy, often dangerous, owing to the tide and direction of wind. No one lives on the island.—P. O. A. P. S.

6080. **Oban.**—Mr. S. Lawrence, chemist and photographic dealer, also secretary of the Oban Amateur Society, stocks various brands of plates, and has a dark-room available. Numerous hotels at various rates.—P. O. A. P. S.

6083 **Ventnor.**—"A. P. S." cannot do better than put up at Rayner's Temperance Hotel. If he writes for tariff he will not find that their charges are too dear; they are most reasonable and the accommodation excellent. I much prefer Ventnor to any other place on the island for scenery. Don't omit to visit the landslip near Bonchurch.—BRETLAW.

QUERIES UNANSWERED.

April 14.—Nos. 6027, 6029, 6030, 6032.
,, 21.—Nos. 6035, 6038, 6040, 6046. 6047.
,, 28,—Nos. 6052, 6053, 6055, 6057, 6059, 6061.
May 5.—Nos 6065, 6066, 6067, 6068.
,, 12.—Nos. 6071, 6072, 6073, 6075, 6076.
,, 19.—Nos. 6077, 6078, 6081, 6082, 6084, 6085, 6086.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

R. MARTIN.—We have called on the firm named in your letter, and they assure us that the camera was sent off as soon as ready.

R. L. COCKS.—A deep red flannel is the best, or baize or thin felt would answer your purpose. Black velvet is used, but obviously this is not cheap. We should be inclined to get dark-red blind material and prime it with a distemper of lamp black and burnt umber. If you do not want to stretch your background, the only thing to do would be to have it very carefully damped all over the back, and then, when dry, paint the crease out.

W. THOMPSON.—There is no English work on photogrammetry published in this country, though you might be able to obtain a copy of Reed's "Surveying by Photography," from Percy Lund and Co., Memorial Hall, E.C. This was published in America. So far as we are aware, there have been no articles on the subject published, but we will see if we can get you what you want.

R. S. F.—The very fact of printing slowly will give you increased contrast. The brighter the light the less the contrast as a rule.

WHOLE-PLATE.—Dollond and Co., Ludgate Hill, will supply you with a suitable spectacle lens, or their monocle, with four lenses of different foci with tube marked with the corrections and table for the same, for 30s.

NEMO.—(1) You can use your camera and lens for daylight enlarging, provided the camera will rack out far enough to get a decent size. You will be limited by the extension of your camera, unless, of course, you darken all your room and use the camera merely as a support for your lens. We can give you no idea of the exposure unless you tell us how much you intend to enlarge. The more satisfactory plan will be for you to try some small pieces of paper. (2) The Ilford isochromatic screen fits in a little framework screwed inside the camera behind the lens, so that within reasonable limits the size of the lens used is immaterial—that is, up to 2 in. in diameter. Any pyro developer with soda or potash may be used for iso. plates; ammonia is not so good. We have found amidol give excellent results with these plates.

DR. WESTBY.—Many thanks for letter, which we utilise as a basis for note.

E. MARTIN.—After cleaning the glass thoroughly it is advisable to rub it over with a waxing solution composed of—

Yellow wax	36 gr.
Yellow resin	12 ,,
Turpentine	2 oz.

Rub this over the plate, then polish and squeegee your prints down, and you will find no difficulty in stripping when quite dry. We had a note only on p. 313 of our issue of May 12th on black tones.

J. L. THOMPSON.—We should advise you to continue development rather longer—in fact, till you cannot see through the high lights at all; but if you will send us up two exposed plates, we will develop them for you.

NOVICE.—(1) Negative wants intensifying, and spoilt by masking. (2) Ditto. (3 and 4) Both are too flat, and we should say due to too thin negatives slightly over-toned. (5) Would stand slightly deeper printing. (6) Printed too deep, and an awful tone. (7) Very fair. (8) Good. (9) Ditto. (10) Ditto. Either your combined bath was old, or else you did not wash your print thoroughly before toning, consequently sulphur toning was set up, which gives such fearful tones. 9 and 10 would be figure subjects. If you want prints back send stamp.

H. S. G.—We unfortunately know of no dark-room at New Cross. You might write to Mr. H. L. Davis, Assist. Hon. Sec, Lewisham Camera Club, 95, Cranfield Road, Brockley, S.E., who, perhaps, may know of some member living near there. In August, 1891, we had a series of articles, with map, "N. Wales as a Field for Photography," which would give you the best information on the subject. On one side of Conway you have Llandudno and Rhyl, on the other Penmaenmawr, Aber, Bangor; and Penmaenmawr is said to be the prettiest of all the Welsh seaside resorts. It is a small town, lodgings good, and, except in August, cheap. You would find some useful notes in last year's and in this year's "A. P. Annual."

STUDIO.—Your best plan would be to purchase H. P. Robinson's book, "The Studio, and What to do in It," price 2s. 6d. This will give you all the information you want, and we have an article this week on subject.

AMATEUR (Beverley).—The aperture of lens must depend to a great extent upon the speed of your shutter and the sensitiveness of your plate. For general work *f*/11 to *f*/16 would do. Your lens, 8½ in. focus, will work allright on your camera, provided you do not want to get too near to the object, and it is the usual focus for a half-plate. The view-finder is placed in the most convenient place. If you can see the image when the view-finder is on top of the camera, put it on top just over the lens; if not, put it at the side level with lens.

W. T. G.—Letter by post.

TRIX.—(1) The only advantage of the new formula is that there is less chance of fog, and for general work the results are a little more brilliant. (2) Place's shutter, from Place, Bull Street, Birmingham.

WM. B.—Your portrait is not sharp; under-exposed and insufficiently developed, and print unevenly toned. If you are careful in using a weak amidol developer, there is no fear in getting any clogging of the high lights. Density can easily be obtained afterwards.

VALLE CRUCIS.—(1) Yes; filter your bath, see that it is alkaline, and add more gold. (2) Wash your prints thoroughly, place for five minutes in a borax gold bath, wash well, and then in—

Oxalate of potash	48 gr.
Acid phosphate of potash	30 ,,
Chloroplatinite of potash	4 ,,
Distilled water	4 oz.

As soon as desired colour is reached, wash well, and fix in alkaline hypo. This gives the best tones. (3) Chloroplatinite of potash is known as potassio-chloride of platinum.

D. LINDSAY.—We are very sorry, but do not know the camera you have. Why not write to the makers?

F. E. R.—Your price is very low, but we will write you.

ENQUIRER.—The large reflection is due to not having sufficient black blinds, or not using enough white blinds. Except for this, the lighting is excellent. It is merely a question of a few experiments on your part.

W. R. P.—(1) There is really no choice between them. (2) The bromides being dull is greatly due to the surface. If bromide paper is squeegeed to plate glass it will give equally as sparkling prints as albumen. But it may be that the bromides are over-exposed. (3) It is an understood thing that a photographer has a right in every picture that he takes, and that the same cannot be reproduced or used for any purpose without his leave.

J. KEAN.—(1) The light is about twice as actinic in Switzerland as here, consequently you would require to give half the exposure. (2) No. 1; most certainly, Iso. (3) No permit is necessary, but you may have to pay duty, and as long as you keep away from forts and fortifications, you will not meet with difficulties. (4) There is plenty to be done at both places, but we insert as query.

G. BALL.—We should say all your negatives are over-exposed, and fogged in developing, to such an extent that the image is almost buried, which accounts for their taking so long to print.

C. BRIGGS.—(1) We should say that your stops are *f*/8, *f*/11, *f*/16, *f*/22, *f*/32, *f*/45, and *f*/64, but this is pure guess work on our part. Set up your camera and focus the clouds, measure the distance between the diaphragm slot and focussing screen, divide this distance by the diameter of the largest stop O, and if it comes out near 8, you may assume we are right. (2) Try mezzotype paper, which is a print-out paper prepared in two surfaces—rough, and extra rough. The address is the Carlotype Company, Rainham, Essex. They will send on directions. Platinotype is not a difficult paper to work, having once mastered the point as to how much of the image should be visible before developing, and it lends itself well to artistic treatment. If you can call at the office, giving us notice, we might be able to show you how to work the papers.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence,*** *Every additional three words,* ***one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one*** *word: compound words count as* ***two*** *words.)*

DEPOSITS.—*Money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge 1s.*

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 8d. to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, *1, Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR, AMATEUR PHOTOGRAPHER, *1, Creed Lane, London E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.,*** *or a commission of* ***2½ per cent.,*** *upon the sale price of the apparatus.*

Cameras, etc.—A 7½ by 5 camera, complete and perfect, cost £8 11s., price £4; on view.—General Agency, Spencer Street, Victoria Street, Westminster.

Cameras, Lenses, etc.—Mason's half-plate camera, three slides, R.R. lens, bag, etc., equal to new, £4 10s. —Francke, St .Saviour's Road, Jersey.

Splendid mahogany studio camera, whole-plate, bellows, London make, slide with adjustable carrier for all sizes, Voightlander's whole-plate euryscope lens, lot £6 10s.; lens worth money.—Green, Photographer, Rotherham.

Dark-Room.—Davenport's Eveready dark-room, splendid condition, 25s.—8, Lordswood Road, Harborne, Birmingham.

Enlarging Apparatus.—Lancaster's 12 by 10 enlarging camera, 20s.—111, Shakespeare Road, Herne Hill.

Hand-cameras, etc.—Kodak, No. 3 Junior, cost 170s., equal new, £4 4s.—Spurrell, Tavistock Place, Plymouth.

Samuel's quarter-plate detective, takes 12 plates, cost 50s., will take 25s.; also Stirn's detective, takes six round pictures on one plate, cost 25s., will take 12s. 6d.; both in good condition.—Parker, Chemist, Scarborough.

Fallowfield's Facile hand-camera, with view-finder and 12 metal sheaths, all complete and as good as new, only used three or four times, will accept £3 cash.—Mr. Lane, Cambridge Villa, Worthington Road, Surbiton, S.W.

Lenses, etc —Carte-de-visite lens (Voightlander's), 15s.—111, Shakespeare Road, Herne Hill, S.E.

Grand 15 by 12 lens by Dallmeyer, splendid for groups, £5; approval anywhere on deposit.—111, Shakespeare Road, Herne Hill, S.E.

Fine whole-plate rapid rectilinear, covers *f*/8, perfect, bargain, 30s.—Lenz, 8, Kenilworth Road, Willesden Lane, London.

Splendid whole-plate R.R., iris diaphragms, exquisite definition, faultless, 36s., guaranteed.—Photo, 10, High Street, Harlesden, N.W.

Lens, splendid half-plate rapid rectilinear, first-class definition, bargain, 22s.—Address, W. E., Sims' Library, Willesden Green, N.W.

Nearly new quarter R.R., good definition, Waterhouse diaphragms, 18s. 6d.; approval.—X., 30, Victor Terrace, College Park, W.

Ross' portable symmetrical, No. 4, 6in. focus, a beauty, £2 16s.—Gunston, 14, Westmorland Terrace, Bath.

Very fine 7 by 5 rapid rectilinear lens, iris diaphragms, grand definition, 8in. focus, as new, approval, deposit, 28s. Address, Iris, 121, Shirland Road, London, W.

Ross' Universal whole-plate lens, condition as new, cost £7 10s, take £5; Ross' No. 3 portable symmetrical, also good condition, cost £3 10s., take 45s.; approval; deposit.—Omega, Cedars, Rickmansworth, Herts.

For sale, Ross' No. 2 c.-d.-v. lens, list price 130s., accept 60s.; approval; deposit.—Kitchner, Halbankgate, Milton, Cumberland.

Half-plate rapid rectilinear lens, cost 42s., new, approval, 80s.—Hill, 104, Wavertree Road, Liverpool.

Rapid rectilinear lens by Bauz, grand definition, size half-plate, covers well to edges, fitted Waterhouse stops, works *f*/8, moveable hood, guaranteed finest condition, lowest price 25s.; approval.—R. Richards, 25, Beck Road, Mare Street, Hackney.

Crouch's hand-camera lens, 5in., working at *f*/8, iris diaphragms, new, £2, cost £3.—H. Lee, Thornhurst, Wolverhampton.

Negatives.—Thirty-eight quarter-plate negatives of Ilfracombe, Lynton, Clovelly, and Torquay, suitable for making lantern slides, price £2.—John Stabb, 154, Queen's Road, Bayswater.

Sets.—Lancaster's 12 by 10 International camera, complete with stand, tripod, and lens, one double slide, precisely as sent out and listed by Lancaster, with one double carrier each for whole and half plate, all new, cost £12, will take £9 10s.—Parker, Chemist, Scarborough.

On sale, Lersbour's half-plate portrait lens, with stops between lens, in good condition, 26s. 6d., a bargain; also a wide-angle symmetrical lens, 22s. 6d., cost double, as new, a splendid lens; also a splendid half-plate camera, with reversible back, taper bellows, racks to 16in., with three double backs, with oak folding tripod, camera and tripod cost £6 4s., will sell for £6 4s., will sell for £3.—Joseph Berry, 39, Matthew Street, North Bolton, Lancashire.

Splendid Lancaster's quarter Merveilleux camera, lens, double slide, and stand, little used, cheap.—T. Hall, Lear, Bailieboro, Ireland.

Sundries.—Sale or exchange for anything useful, 104 unbound numbers AMATEUR PHOTOGRAPHER, clean, December, 1890, to December, 1892; no reasonable offer refused.—Mills, 3, Worsley Place, Milnrow Road, Rochdale.

Set of diaphragms, whole-plate lens, in leather case, 3s. 6d.; 2 vols. "Photography," 2s. each.—Jackson, Fishguard, Pem.

Tripod —Walking-stick stand, 7s. 6d. (quarter cost). —H. Cheshire, 9, Great Tower Street, E.C.

WANTED.

Cameras, Lenses, etc.—Wanted, half-plate camera, lens, etc.; exchange gentleman's gold albert and locket —A. D., 48, West Street, Hertford.

Half camera and stand, also cabinet portrait lens.—12, Curtain Road, Shoreditch

Rollholder.—Wanted, rollholder for Adams' hand-camera, quarter-plate —Bevan, Dundrum, Dublin.

Tripod.—Stand, Watson's cyclist's four-fold (with sliding legs and without top preferred).—A. W., Rocklands, St. Leonards.

It is unnecessar to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bijou Enlarging Lantern.—Patent rectangular or square condensers used by Van der Weyde and other eminent photographers, reduces size nearly half; portable, unique, scientifically constructed, beautifully made, and optically correct.

Bijou Enlarging Lantern is the only perfect enlarger, high-class lenses and workmanship.

Bijou Enlarging Lantern, new design, takes negatives all sizes, gives uniform illumination. Every amateur and photographer should possess one. Gives universal satisfaction. Enthusiastic testimony everywhere. Prices with or without objectives sent on application. Cheapest and best. Hughes, Brewster House, Mortimer Road, Kingsland, London, N. Before purchasing any lantern get our grandly illustrated Catalogue, a surprise when seen; over 180 choice wood-blocks of the finest and cheapest instruments extant, 6d., postage 3d.

Bargains in Cameras and Sets.—Underwood's whole-plate Exhibition camera, double extension, leather bellows, rising and cross front, wide-angle movement, fitted two double dark slides with carriers, Underwood's R.R. lens, iris stops, instantaneous shutter, finder, turntable, four-fold stand, and waterproof canvas case, £8 5s.; Lancaster's whole-plate brass-bound Instantograph, wide-angle movement, all latest improvements, leather bellows, etc., fitted Lancaster lens, iris stops, instantaneous shutter, two double brass-bound slides, carriers and folding stand, finest condition, £6 17s. 6d.; Underwood's whole-plate Field camera, double extension, leather bellows, rising front, reversing and swing back, wide-angle movement, width when closed 2 in., fitted very fine rapid rectilinear lens, iris stops, double book-form slide, folding stand, and canvas case, £7 5s.; half-plate camera by Chapman, Manchester (Scott's patent), double extension, leather bellows, rising front, swing and reversing back, three double book-form slide, fitted very fine R.R. lens, iris stops, folding stand and canvas case, £4 17s. 6d.; half-plate Spanish mahogany camera by Mallett, double extension, rising front, swing and reversing back, three double book form slides, fitted rapid rectilinear lens by Laverne, Waterhouse stops, two-fold stand and case, real bargain, £55s.; quarter-plate Spanish mahogany by Lawley, square leather bellows, double extension, rising and cross front, swing and reversing back, three double book-form slides, fitted rapid rectilinear lens by Laverne, Waterhouse stops, folding stand, and solid leather case, £4 17s. 6d.; Lancaster's quarter-plate Instantograph, Lancaster lens and shutter, double slids, folding stand and case, as new, 25s. All above sets guaranteed as described in every detail. On view, City Sale and Exchange, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Hand Cameras.—London Stereoscopic Company's twin-lens Artist hand-camera, fitted Black Band lenses, Waterhouse stops, works *f*/6, adjustable focus, full-size finder, three double dark slides, in solid leather case, £11 5s.; Merlini quarter-plate hand-camera, fitted very fine rapid rectilinear lens, Waterhouse stops, T. C. shutter, rising and cross front, swing back, adjustable focus, fitted, six single dark slides, two finders, covered leather, finest condition, £4 17s. 6d.; Optimus' detective hand-camera, fitted Optimus rapid rectilinear lens, time and instantaneous shutter, adjustable focus, two finders, three double dark slides, covered leather, £4 5s.; King's twin-lens hand-camera, fitted Adams' Ideal lenses, full size finder, adjustabe focus, carries twelve quarter-plates, covered leather, bargain, £3 17s. 6d.; No. 2 Kodak, fitted R.R. lens, time and instantaneous shutter, finder, carries 100 films, covered leather, in solid leather case, £4 10s.; Adams' Otto hand-camera, fitted very fine landscape lens, time and and instantaneous shutter, carries twelve quarter-plates, bag changing, two large finders, lowest, 63s. Fallowfield's Facile hand-camera, fitted R.R. lens, time and instantaneous shutter, carries twelve quarter-plates, condition as new, £3 17s. 6d.; Radial hand-camera, by Marion, fitted "Soho" lens, carries twelve quarter-plates, shutter, two finders, foonsser, etc., in leather case, £5 17s. 6d.; Ariel hand-camera, leather bellows, fitted Wray's 5 in. R.R. lens, rotating stops, Thornton-Pickard shutter, three double book-form slides, finder, complete in case, as new, £5 10s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Optimus 3B quick-acting portrait lens, fitted Waterhouse stops, works *f*/4, focus 10 in., diameter of lens 3¼ in. condition as new, £7 12s. 6d.; Dallmeyer rectilinear landscape patent lens, fitted Waterhouse stops, grand definition, covers well, 13½ in. focus, size 10 by 8, £4 10s.; 8 by 5 Grubb aplanatic doublet lens, fitted Waterhouse stops, works *f*/8, best condition, £3 15s.; Optimus 7 by 5 landscape lens, rotating stops, quite new, 27s. 6d.; half-plate rapid rectilinear, by Atkinson, Liverpool, Waterhouse stops, grand definition, covers well, 15s.; 7 by 5 rapid rectilinear by Browning, fitted Waterhouse stops, grand definition, as new, 27s. 6d.; 7 by 5 rapid rectilinear lens, by Laverne, works *f*/8, movable hood, grand definition, covers well, as new, 27s. 6d.; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s.; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works *f*/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s.; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works *f*/8, movable hood, as new, 45s.; 5 by 4 Dallmeyer wide-angle landscape lens rotating (1A patent), rotating stops, grand definition, 50s.; Laverne ¼ wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B). Waterhouse stop, rack focussing, condition as new, £3 17s. 6d., cost £6 5s. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

ENLARGING APPARATUS, quarter-plate, 5in. condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work. —Hume, 1, West College Street, Edinburgh.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

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IMPORTANT NOTICE TO AMATEURS.—Developing Printing in any process, Retouching, Bromide Enlarging and Finishing, etc., executed with the *utmost* promptitude, and the very best results obtained. Work called for (if in London) on receipt of card. New Price List now ready. Only address:—WILFRED EMERY 24, SOUTH STREET, BAKER STREET, W.

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Offices. 1, Creed Lane, Ludgate Hill, London, E.C.

No. 452. Vol. XVII.] FRIDAY, JUNE 2, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 till 5 o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from 10 till 1 o'clock.

Our Views.—World's Fair Exhibitors' Strike—French Copyright and Patent Laws—Schevin's Magnesium Signalling—Another Discovery of Aluminium Clays—Aluminium Hand-Camera—A Photographic Theatre—Plymouth—Optimus 100-Guinea Competition—Notes for World's Fair Visitors—Convention Notes—Using Household Utensils for Photography—The Result.

The Month.

Flotsam and Jetsam.

Letters.—Paint for Backgrounds (Edgar)—Photographic Convention (Cembrano)—Depth of Focus (Nash).

Articles.—Plymouth (Pilditch)—Burton on Density Ratios—Dark Room Jottings (Craig).

Our Town Traveller.—Morgan and Kidd.

Reviews.—Horne's Guide to Whitby.

Illustrated Supplement.

Apparatus.—A B C Toning Powder—Fitch's Photomechanical Film—Ubiquitous Cameras—New Telephoto Lens—Tylar's Tit Bit Camera—Primus Air-Tight Box.

Societies' Meetings.—Bath—Durham—E. London—Hackney—Kendal—Liverpool (A.P.A.)—Rotherham—S. London—Tooting—W. Kirby.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Print Competition, No. 49, Figure Study.—Latest day, June 19th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. **Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, June 30th, 1893.)**

We have been treated to strikes of all kinds in England lately but the Chicago World's Fair exhibitors have struck in consequence of the system of awards. A single expert is to decide, and his decision to be affirmed by a superior board. It is said that the British, Belgian, French, German, Italian, and Russian commissioners have protested, and numerous exhibits have been withdrawn.

* * *

A fact not without interest to photographers is that France has followed the lead of the U.S.A. with reference to copyright works, which can only be protected if the mechanical part of the production is by French labour. Now the French Government have decided that a foreign article or process can only be patented in France when such article or process is made or worked in France. This means that British inventors must be prepared to have their goods made by French labour or they have no protection against the piracy of the same.

* * *

Professor Schevin has induced the German Admiralty to utilise a flash-light for signalling. A stream of magnesium is run through a frame of carburetted air. The flashes are said to be visible during the day at a distance of six miles, and to have a power of 400,000 candles. It is curious that one of the earliest forms of magnesium light for photographic purposes was obtained somewhat after a similar fashion.

* * *

In a recent report presented by the Smithsonian Institute, U.S.A., it is said practically inexhaustible deposits of bauxite have been discovered in Alabama, which contains from 40 to 48 per cent. of pure aluminium, whereas ordinary clay only contains 33 per cent. This has, of course, given an impetus, if such was needed, to the application of aluminium to all kinds of things, and the latest is tooth stopping and artificial teeth. We wonder what will be the next thing.

* * *

We were shown the other day a hand-camera constructed entirely of aluminium, which certainly was very light, but we were also informed very dear and costly to work. Dark slides were used with it, with wooden frames, and aluminium shutters, etc. There was a great saving in weight, but the sides had an unpleasant knack of cracking when pressed, which was quite sufficient to frighten any nervous person.

* * *

Our Benevolent Association might take a lesson from the kindred association in Paris, which intends starting a photographic theatre. The actors will be photographed at intervals during a performance, and then the scenes projected by means of the lantern on the screen whilst a reader recites the dialogue.

WE publish elsewhere the full details of the "Optimus 100 Guinea Competition," which for the second year has been instituted by Messrs. Perken, Son, and Rayment. There are nine classes and twelve prizes. Entry forms have been placed at our disposal, and we shall be pleased to forward same to any reader on receipt of stamped addressed envelope.

* * *

MR. H. SNOWDEN WARD, the editor of the *Practical Photographer*, has compiled a very useful little pamphlet, which he calls "A Few Notes" for those visiting Chicago this summer. These include notes on the route, hints as to starting and necessary clothing, hints about the voyage and on landing, and on the various cities through which the traveller will pass, with list of objects of interest and dark-rooms; a list of the papers to be read at the World's Congress of Photographers and the Photographers' Association of America; and also some good hints on "Health in Chicago" by a physician. This booklet will be invaluable to all intending visitors, and is crammed with useful information.

* * *

WE commence this week an article on "Plymouth and District," which will be of interest to those who visit the Convention this year.

* * *

THE following further particulars of the Convention have been sent us. The proceedings will be opened on the 3rd July at the Western Law Courts, the Guildhall, Plymouth, by the Right Worshipful the Mayor of Plymouth, W. Law, Esq. In connection with and at the same time as the Convention an exhibition of photographs and photographic apparatus will be held at the Art Gallery of the Plymouth Institution from 3rd to 8th. On Wednesday, 5th inst., the group will be taken, weather permitting, in the Guildhall Square. On Wednesday evening the Mayor of Devonport, W. Waycott, Esq., will hold a reception of the members at Devonport. The dinner and smoking concert will take place at the Western Law Courts on Friday, 7th July. The headquarters will be the Royal Hotel and the Westminster Temperance Hotel.

* * *

SOME people have a most happy-go-lucky temperament. Unlike those very precise persons who carry out their work on the most approved methods and always make a point of using the proper accessories, there are not a few who are contented with any handy substitute they can find. A raid is frequently made on the ordinary household utensils, and it is sometimes little short of a marvel that the services of the local coroner are not rendered necessary through the great want of thought on the part of this careless class of amateurs in not properly cleansing such articles as pie-dishes, tea-cups, etc., from the dregs of photographic chemicals which have been placed in them for the time being.

* * *

THE following incident tends to illustrate the truth of the above remarks, although, as it fortunately happened, nothing serious resulted from the carelessness of the amateur in question.

* * *

IT appears he had been experimenting with that recent invention Cresco-Fylma, and had put some of it into a tumbler, which he afterwards forgot to wash. The next morning, wishing to give his teeth their matutinal scrub, he poured some water into this identical glass. On dipping in the brush and using it in the ordinary manner he was surprised to find a peculiar flavour in his mouth. He immediately took up the glass and rinsed his mouth with the contents in order to get rid of the unpleasant flavour, but he at once spat it out with a shudder, for the horrible taste was increased a hundredfold. It then flashed across his mind that he had not cleansed the glass after his operations on the previous day.

HE states, for the benefit of those benighted mortals who have not yet had the pleasure of tasting Cresco-Fylma, that a gallon of ink would compared to it be a cooling summer drink. The flavour lingers in the mouth for at least a day.

The Month.

PINHOLE PHOTOGRAPHY.

A. C. PONTON summarises previous information and his own experience on this subject as follows: Lord Rayleigh gives $f = (2r^2/\lambda)$, where f is the least distance of good definition, r the radius of the aperture, λ = wave length of G = 0·000017 in. Colson's formula is $d^2 = 0{\cdot}00081$ F., where d is the diameter of aperture, and F the distance of good definition. Dallmeyer gives $b = \frac{r^2}{\lambda}$, where b is the least distance of good definition in inches, λ the G wave length=0·000017, r the radius of aperture. Abney gives $2\sqrt{\lambda b}$, or the square root of the distance of plate from hole multiplied by ·008 gives the diameter in inches of aperture. Ponton's own conclusions are: One-thirtieth of an inch will give as good pictures at 32, 16, 8, 4, and 2 in. focus; 1-300th in. will always give sharp images. The light is eight times more energetic when passing through a pinhole than through a lens stopped down to same aperture. The exposure may be calculated from the basis that when the focus is sixty-four times the diameter of pinhole, the exposure is one second. Experimental evidence goes to prove that there are an infinite numbers of foci for all apertures. An aperture of 3-16ths in. will not give images, 1-8th inch is the limit. Distance of object from pinhole has no influence on pinhole or focus. Finally, the writer has placed on the market a quarter-plate camera with two apertures, one to give soft pictures on ordinary plates with 1 sec. exposure, the other a sharp picture in 16 sec., focus in both cases 2 in. Nine cameras weigh 2lb. —*Brit. Journ. Phot.*, May 19th, p. 312.

FOCUSSING WITH WIDE-ANGLE LENSES.

A carefully written article on this subject proves that with wide-angle lenses, which are usually constructed of deep meniscus combinations, there are two focal planes for the large and small stops respectively, and that focussing should always be effected with the aperture that will be used when exposing. Owing to the small amount of light sometimes transmitted through the smaller apertures, it is suggested that experiments should be made as to the necessary correction, and having focussed with the large aperture to make the correction for the smaller one.—*Brit. Journ. Phot.*, May 5th, p. 273.

THE PHOTO-CORRECTOR.

Mr. Van der Weyde described his photo-corrector with illustrations at the Society of Arts as "a lens continually varying the order of its conic section until it reaches the plane; in other words, where the circumference of a plano-convex lens would otherwise stop, it flows or graduates into the reverse or concave curve, and thus gradually merges by a wave-like line into the plane. The full text of the paper appeared in the "A. P.," May 12, p. 316.

IMPROVEMENTS IN TELEPHOTO LENS FITTINGS.

W. K. Burton describes the arrangement of bevils and spindle for focussing with long-extended cameras, and also the arrangement for separating the back elements.—*Photo. Work*, May 26th, p. 245.

LIPPMANN'S PROCESS.

MM. A. and L. Lumière recommend the following process for the preparation of the plates for Lippmann's process of colour photography:—

1.	Distilled water	400 parts.
	Gelatine	20 „
2.	Distilled water	25 parts.
	Potassium bromide	2·3 „
3.	Distilled water	25 parts.
	Silver nitrate	3 „

Mix half No. 1 with No. 2 and half with No. 3, and then mix by adding the silver to the bromised gelatine. The emulsion is sensitised by adding cyanine, methyl violet, erythrosin, etc., filtered, and the plate coated on a tournette. The temperature must not exceed 40 deg. C. When set, immerse the plate for a short time in alcohol, and then wash in running water. By this process a finer grain is obtained than by that of Valenta. After being washed the plates are dried, and before use immersed for two minutes in—

Distilled water	200 parts.
Silver nitrate	1 part.
Acetic acid	1 „

This gives greater brillancy to the image. The plate is again dried and exposed. The developer is as follows:—

1.	Distilled water	200 parts.
	Pyrogallic acid	1 part.
2.	Distilled water	100 parts.
	Potassium bromide	10 „

The actual developer is—

Solution 1	10 parts.
„ 2	15 „
Liq. ammoniæ (·960 sp. gr.)	5 „
Water	70 „

The strength of the ammonia is important. After development the plate is washed and fixed in a 5 per cent. solution of potassium cyanide.—*Bull. Soc. Franc.*, May 15th, p. 249.

Luminous Bacteria.

Dr. Fischer showed before the Phot. Soc. of Kiel prints obtained from negatives formed by the light emitted from luminous bacteria cultivated from sea-water fishes.—*Anth. Bull.*, p. 266, May 13th.

Seeing the Images in Stereoscopic Cameras Stereoscopically.

To judge of the final result of a stereoscopic view a pseudoscope is suggested, which is "a pair of small rectangular glass prisms, mounted the distance of the eyes apart with the hypothenuses to the inside, so that each eye is directed to a surface inclined to its axis." To use this focus in the usual way and adjust the prisms of pseudoscope till one image only is seen.—*Brit. Journ. Phot.*, May 19th, p. 306.

Notes on Stereoscopic Photography.

Donnadieu, after a brief consideration of the various terms used in connection with stereoscopic photography, summarises the same as follows:—

Two photographic images of the same object	when combined in one give	the idea of relief either feeble, normal, or exaggerated.	Stereoscopy.
		the idea of reversed relief, *i.e.*, distance in front of foreground.	Pseudoscopy.
	when badly combined or not at all, give	absence of superposition and image indistinguishable.	Aphanascopy.
		absence of relief, the image the same as in an ordinary photograph.	Planoscopy.

Bull. Photo. Club, Paris, May, p. 151.

Coloured Screens.

M. Monpillard suggests the following coloured screens for photomicrographic work, the same to be used in cells 2 mm. thick with parallel sides:—

Bright yellow. Neut. chromate of potash. 1 per cent. Reduces action of blue and violet.

Deep yellow. Neut. chromate of potash. 5 per cent. Cuts off violet and most blue.

Orange. Bichromate of potash. 8 per cent. Cuts off violet, and blue more completely.

Red. Erythrin. 0·2 per cent. Cuts off blue violet and most green.

Bull. Soc. Franc., May 15th, p. 241.

A New Form of Pyroxylin.

Messrs. Cross, Bevan, and Beadle announce that cellulose treated with caustic potash becomes gelatinised in bisulphide of carbon, and the compound thus obtained can be dissolved in water, forming a yellow viscous solution. When evaporated to dryness at 100 deg.C., it forms a tough transparent collodion-like film, which may be useful in photography.

Formulæ for Blacking Articles.

Blackening leather-coloured hand-cameras:—

Glue	4 oz.
Vinegar	1½ pints.
Gum arabic	2 oz.
Black ink	8 oz.
Isinglass	2 drm.

Break the glue in pieces, put in a basin, pour over it about a pint of the vinegar, let it stand till it becomes perfectly soft. Put the gum in another vessel with the ink until it is perfectly dissolved; melt the isinglass in as much water as will cover it, which may be easily done by placing the cup near the fire about an hour before required for use. To mix them, pour the remaining vinegar with the softened glue into a vessel and heat on a sand bath over a gentle fire; stir till dissolved, and do not let heat be over 80 deg. C. Add the gum and heat to 80 deg. C, add the isinglass, and it is ready for use. Put as much as required in a saucer, beat it till thin, and apply with a small sponge. If the article is dried quickly in the sun or before the fire it will have a better polish.—*Amer. Journ. Photo.*, May, p. 238.

To Blacken Wood.

Extract of logwood	½ oz.
Chromate of potash	30 gr.
Water	35 oz.

Dissolve the extract in boiling water, add the chromate also in solution. This is a deep violet liquid which changes to black in contact with the wood.—*Science en Famille.*

Physical Development.

Under this title Schnauss gives a *resume* of R. E. Liesegang's experiments on this subject, which contains but little of practical value, except the formula of "Aristogen," which is Liesegang's developer for gelatino-chloride papers.

Hydroquinone (7 per cent. alcoholic solution)	4 parts.
Sodium acetate (15 per cent. sol.)	8 „
Water	70 „

Brit. Journ. Phot., May 19th, p. 314.

Reducin.

Under this name the Aktien Gesellschaft (late Schering), of Berlin, have introduced a new developer which is the hydrochlorate salt of diamidoresorcin $C_6H_2(OH)_2NH_2)_2$. H. W. Vogel gives following notes on the same. It is in white needlelike crystals, easily soluble in water, and forms a green solution which turns yellow on the addition of sulphite. Several comparative tests were made with a developer of

Reducin	3 parts
Sodium sulphite	25 „
Sulphuric acid	5 „
Water	500 „

No alkali is required, and very soft, delicate images are obtained

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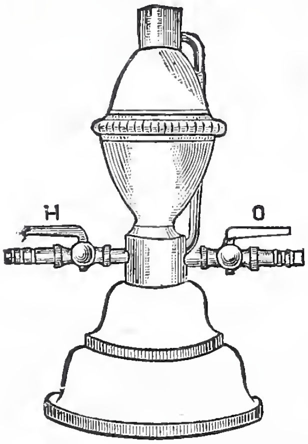

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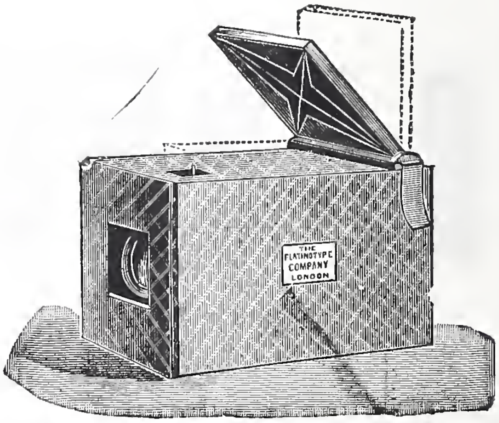

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29, SOUTHAMPTON ROW HOLBORN, LONDON, W.C.

AMIDOL FOR BROMIDE WORK.

J. Pike strongly recommends amidol for bromide papers and opals. Full exposure should be given, and the amidol developer of amidol, 10; sulphite, 100; water, 480, should be diluted with two or three parts of water and a few drops of 10 per cent. solution potassium bromide, wash and fix. Suggestions are also made for obtaining warm tones.—*Brit. Jour. Phot.*, May 12th, p. 296.

REDUCING OVER-PRINTED GELATINO-BROMIDE PRINTS.

W. Lindsay suggests the use of a hot saturated solution of common salt; when cold add two ounces of alum and half an ounce of hydrochloric acid to every ounce. [? pint.—Ed. "A. P."] Place the print in this till sufficiently reduced, then wash. Or use a saturated solution of salt and add sufficient hypochlorite of soda (Labarraque's solution) to reduce. Well wash and dry. The salt dissolves the small amount of chloride of silver formed, and there is no need to refix.—*Brit. Journ. Phot.*, May 5th, p. 276.

TO PREVENT YELLOWING AND FADING OF PRINTS.

It is strongly recommended to add solution of iodine to starch paste for mounting prints, and H. W. Vogel states that a print, half of which was mounted by this iodised paste and the other half not mounted, showed only the very smallest difference, proving that the iodised starch had no effect on the image.—*Phot. Mittheil*, May 1st, p. 36.

BLEACHING SILVER PRINTS.

W. Ethelbert Henry states that the best medium for bleaching silver prints of all kinds after having inked over the image is—

Sat. sol. potass. cyanide	15 minims.
Sat. sol. iodine	10 „
Water	1 oz.

—*Pract. Photo.*, May, p. 124.

A NEW OXYCALCIUM JET.

Mr. A. A. Wood has invented a new form of the above particularly suitable for dissolving views. The new jet has a hollow wick, ¾ in. diameter, which is placed in a glass wick chamber surmounted by a brass dome provided with a hole about ⅝ in. diameter so that the wick does not project. The oxygen is conducted to the centre of wick, and the spirit flows through a pipe surrounding that through which the oxygen passes, and remains at a certain level. To light the lamp the oxygen is turned on slightly and lighted, and then turned off, when a small bead of flame will be found burning at the aperture of dome.—*Opt. Mag. Lant. Journ.*, May, p. 74.

A NEW LIGHT FOR PROJECTION AND ENLARGING.

Courtois describes some experiments made for improving the oil light for lanterns by means of a stream of oxygen. A cylindrical woven wick of 13 mm. (equal half inch) diameter was used with colza oil and gave a light of three to four candles, the height of the flame being about 15 mm. (equal five-eighths inch). In the interior of the tube containing the wick a small jet 2·5 mm. (equal one-tenth inch) diameter is arranged, the top of jet being 4 mm. (equal one-sixth inch) below the top of wick. The lamp is lighted, and the oxygen carefully turned on, the flame reaches a height of 25 mm. (equal one inch), although this can be regulated by the supply of oxygen. The light is increased to 25 c. power, with a consumption of oxygen of 20 litres per hour. Examined spectroscopically the light is very rich in blue and violet, and is therefore very actinic.—*Le Photo. Journ.*, May, p. 72.

IRON CARBONYL IN COMPRESSED GAS.

Lewis Wright suggests the formation of this compound as a source of danger and loss of light when compressed hydrogen is stored in steel cylinders, and suggests various remedies.—*Brit. Journ. Phot. Sup.*, May 5th, p. 58.

COLLOTYPE.

S. G. Yerbury gives some good practical hints on the preparation and drying of collotype plates, with sketch of oven. He recommends three-eighths-inch plate-glass, ground on one side, and this is best effected by grinding one plate on the top of the other with emery and water; after grinding, wash in soda and water and well wash, then place in the oven and heat to 80 deg., and coat with

Water	1 oz.
Silicate of soda	½ „
Dissolve, and add gradually	
Stale beer	1 pint.

Any good bitter beer will do that will not throw down a flocculent precipitate. Level your plates, ground side up, coat with silicate beer solution, allow to stand for two minutes, and drain. Heat in oven to 80 deg. The plates will keep indefinitely. To prepare the film, take of Drescher's or Kreutz's middle hard gelatine, 1 oz., cut up small, place in milk saucepan, gradually raise to 120 deg. F., add 90 grains potassium bichromate, and half ounce of well-beaten egg albumen, stir till well mixed, and filter through bleached swansdown. Light gas under oven one hour before coating, level the plates, and coat, using about 10 drachms of gelatine solution for 12 by 10 plate, distribute with glass rod, close oven, leave for 45 minutes, then examine, if you like, and adjust temperature; they should not take less than one or more than two hours to dry. When dry turn out gas, allow to cool, and the plate is ready for exposing. Mr. Yerbury specially recommends Eastman's gelatine skins for making reversed negatives.—*The Practical Photographer*, May, p. 129.

Flotsam and Jetsam.

THE following amusing picture of an enthusiastic aristocratic amateur appeared in a recent issue of the *Morning Leader*. Lord De Ros, it appears, is a true devotee of the camera, and his position gives him especial advantages, of which he made good use when the German Emperor and Empress were staying at Buckingham Palace.

> "LORD DE ROS was observed to be hovering round with something mysteriously concealed under his cloak. His face and tall spare figure were familiar to the police on duty, so that his lordship escaped being mistaken for a dynamiter, and having secured several snap-shots of Germany's impetuous young ruler and of the Empress, he deposited the Kodak carefully in a corner of the courtyard."

ON the same authority we are told that nearly every member of the Royal Family has sat to him. His lordship's album must be well worth looking through, if his skill is at all comparable with his opportunities.

ANOTHER outrage on Mr. Gladstone! He has been shot at, or his house has; stones have been flung at him in the train; and now some desperate photographer has taken a snap-shot at him. All followers of "the black art" will doubtless be cold-blooded enough to hope that it was a successful one, though there was some risk, as it was aimed at Mr. and Mrs. Gladstone while they drove in their carriage through the cheering excursionists who thronged in Hawarden Park on Whit Monday.

THERE are some statements in lectures recently delivered by Professor Vernon Boys, which quite daze the imagination and stun one's powers of calculation. The professor has made experiments which prove that by the aid of electricity bodies speeding through space at the rate of 10,000 miles an hour can be photographed. That would seem a sufficiently marvellous achievement in itself to the lay mind.

BUT science can "go one better" than this. Given a revolving mirror to aid the gay young electric spark, bodies moving at the rate of 180,000 miles an hour can be taken. See what this means. The speed is equivalent to fifty miles a second, an unimaginable rate, but yet one that can be coped with by means of the camera. Professor Boys has demonstrated that the tenth or eleventh part of a second is enough to exhaust the photographic power of the spark, and within that brief period the moving body impresses its image on the sensitive plate in an infinitesimal space of time.

AND, not satisfied with this, there are other professors who must needs be photographing, actually, sound vibrations. One has read in "Handy Andy" of the Arctic explorer whose words froze as they issued from his mouth, and dropped at his feet till he stood surrounded by his own conversation; but this fact beats even that fiction.

AND when one asks how it is done, one is told that a beam of electric light is reflected on to a sheet of sensitised paper from a minute mirror fastened to the vibrating part of a phonograph.

AFTER this it is refreshing to come down to a homely idea, suggested by a cricket match in a London suburb last Saturday. The best man of one of the opposing teams was undoubtedly the umpire chosen by them. He played very well—that is to say, his decisions materially aided his side. He gave one man "run out" who saw his wicket put down after he had passed the wicket-keeper, and he gave another man out "leg before" who was smitten hard by the ball on the fifth rib of his *right* side.

THE vagaries of umpires are as proverbial as the uncertainty of cricket, but might they not be a little diminished if every umpire were compelled to carry a Kodak or some kind of detective camera? How easy it would be, if only one could wait for the plate to be developed, to take a snap shot at the batsman getting home when trying to steal a short run!

ANCHORITE.

* * *

Letters to the Editor.

PAINT FOR BACKGROUNDS.

SIR,—I have found out a very simple and effective paint for backgrounds, which I think would be useful to some of your readers.

It is made as follows:—

Mix rye flour with boiling water into a paste of the consistency of ordinary paint or a trifle thicker, add sufficient powdered black lead to make it the colour required. Strain through a piece of fine muslin, and it is ready for use.—Yours truly, W. EDGAR.

* * * *

PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

PLYMOUTH MEETING, JULY 3RD TO 8TH, 1893.

SIR,—In connection with this year's Convention to be held at Plymouth from July 3rd to July 8th, an exhibition of photographs, photographic apparatus and appliances, will take place at the Art Gallery attached to the Athenæum Buildings.

The charges for wall space will be 3d. per square foot, with a minimum of 3s.; and those for table or floor space, 6d. per square foot, with a minimum of 5s.

Intending exhibitors will kindly apply for space, not later than June 24th, to the Hon. Sec., Mr. F. P. Cembrano, jun., 10, Cambridge Gardens, Richmond, Surrey; or to the Hon. Local Secretary, Mr. R. Hansford Worth, C.E., 42, George Street, Plymouth, stating the nature of their exhibit and space required.

All applications must be accompanied by a remittance for the amount of wall or table space desired.

Exhibits should be delivered, carriage paid, and addressed "to the Hon. Secretary, the Photographic Convention, the Athenæum, Plymouth," not later than 10 o'clock on the morning of Saturday, 1st July.

The executive, while exercising all reasonable care and supervision, will in no way accept any responsibility for any loss or damage to exhibits either on transit or during exhibition.

Exhibitors may have an attendant present to look after and explain their exhibits.—I remain, dear Sir, yours faithfully,

F. P. CEMBRANO, JUN., *Hon. Sec.*

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DEPTH OF FOCUS.

SIR,—May I offer a few remarks, I fear somewhat disjointed, on this subject in reference to Mr. Farmer's article of May 19th? In the first place there is no depth of focus in any lens. What is so called results from the fact that we see the images of two points in different planes equally sharp, although one of them is represented by a circular disc, provided this disc does not exceed a certain diameter. For ordinary purposes the diameter of the greatest allowable disc of confusion is generally assumed to be ·01 inch. Secondly, the question of depth of focus cannot be separated from the consideration of this disc of confusion, the magnitude of which depends on the diameter of the stop used.

The equations converting the several variables in this question are as follow, where—

a = diameter of disc of confusion.
D_1, D_2 = respective distances of the points.
d = diameter of stop.
λ = what Mr. Farmer calls $L - l$.

$$(1)\quad a = \frac{f\,d}{D_2} \cdot \frac{D_2 - D_1}{D_1 - f} = f\,d.\ \left(\frac{1}{D_1} - \frac{1}{D_2}\right).$$

$$(2)\quad \lambda = \frac{f^2\,(D_2 - D_1)}{(D_1 - f)\ (D_2 - f)} = f^2\left(\frac{1}{D_1} - \frac{1}{D_2}\right)$$

And consequently

$$(3)\quad \lambda = \frac{f\,D_2\,a}{d\,(D_2 - f)} = \frac{f}{d}\,a.$$

The second value in each case being used when D_2 is sufficiently great compared with f. From these equations it is easy to learn what stop must be used so that the value $\lambda = \frac{1}{50}$ may be, as Mr. Farmer assumes, a negligeable quantity.

Taking his example, where $D_1 = 240$, $D_2 = \frac{2400}{7}$, and putting $f = 4$, $\lambda = \frac{1}{50}$, $a = \frac{1}{100}$, we get in equation (3), using the more simple form,

$$\frac{1}{50} = \frac{1}{100}\quad\frac{4}{d}\ \text{whence } d = 2.$$

Thus $\lambda = \frac{1}{50}$ is a quantity which may be neglected, even with the impossibly large stop $f/2$, and still more so with the usual stops.

If we take as a measure of depth of focus $D_2 - D_1 = \frac{a}{f\,d}\,.\,D_1\,D_2$ from equation (1), we see that the depth varies inversely as the focal length and the stop diameter jointly, not *the square* of the focal length. Perhaps Mr. Farmer intended to write, not the *diameter*, but the *focal value* of the stop. In that case $D_2 - D_1 = \dfrac{a}{\left(\frac{f}{d}\right)_2}\,D_1\,D_2$ shows that the depth varies inversely as the square of the focal length and the focal value of the stop jointly.—Yours truly,

CLIFFORD E. F. NASH.

* * *

Mr. J. Lizars, of Glasgow, has moved into more convenient and commodious premises, at 101 and 107, Buchanan Street, Glasgow. A special feature is made of photographic and lantern specialities, and full price lists will be sent on post free.

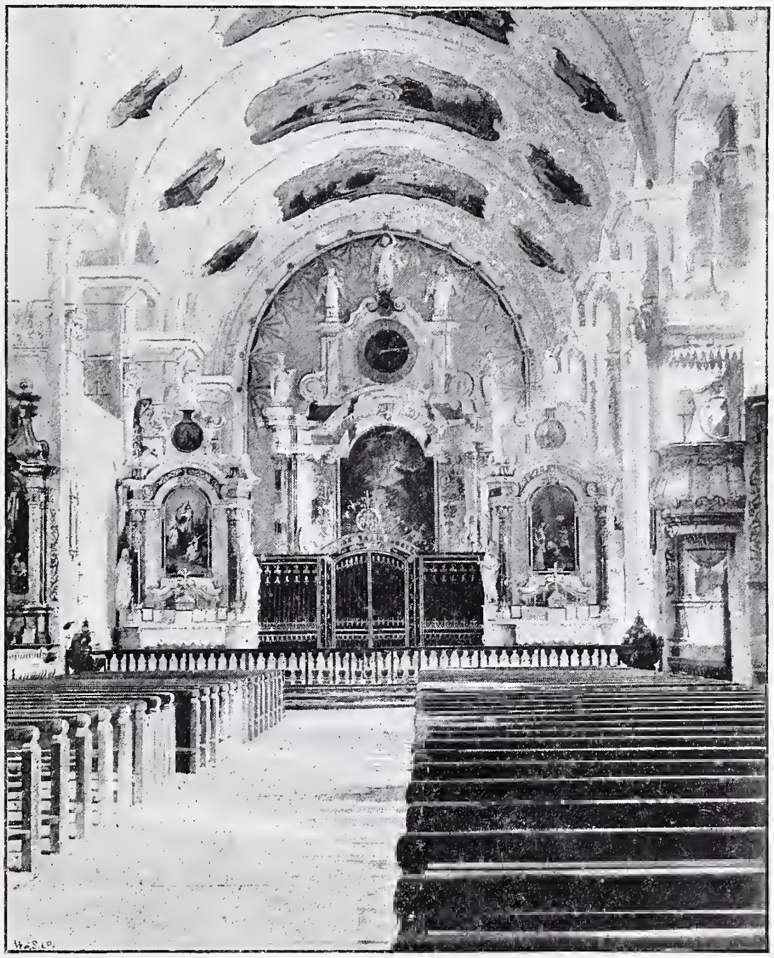
MONTHLY PRINT COMPETITION.

NO. 48.—ARCHITECTURE.

CLASS I.

Shaw, J. E. (Bradford).—" Engelberg Monastery." Lancaster's R.R., *f*/32; August, brilliant sunlight, 2 p.m., Ilford ordinary; 10 min.; P.O.P. A very fine interior, and shows careful technical work.

Gethen, C. (Hereford).—" Killpeck Church Door." Underwood's R.R., *f*/45; 20 sec., April, 4 p.m.; Thomas'; P.O.P., matt. " The arch of the door is a splendid specimen of perfect early Norman architecture." An exquisite soft result, and a good specimen of an architectural bit.



No. 1.] "Engelberg Monastery." [*J. E. Shaw.*

SILVER MEDAL.

Berry, A. R. (London).—" St. Paul's from S.W." Optimus wide-angle, *f*/32; 2sec., June, sun, 3 p.m.; Castle; platinotype. A very soft and delicate print.

Broughton, Eleanor (Pembroke).—" The Oldest House in Tenby." Ross's R. R., *f*/32; January, dull, noon; Castle; cold-bath platinotype. Slightly under-printed and wants two inches off foreground.

Morgan, H. G. (Hereford).—" Interior of S. Miniato, Florence." Wray's R. R., *f*/11; 15 minutes, February, bright sun outside, but interior very dark, 3 p.m; Paget xxxxx; platinotype, cold-bath. Gives one the idea of having shifted in printing.

Kidd, Thomas, Jun. (Spain).—" Puerta de Justicia (Alhambra)." Landscape, *f*/22; 12 sec., May, diffused light, 2 p.m.; Ilford ordinary; platinotype. Very soft, pleasing print, though a little trimming might have improved it.

Bull, P. G. (Bristol).—" Lady Chapel." Fallowfield's Facile landscape, *f*/11; $1\frac{1}{2}$ minutes, April, good light, 3.30 p.m.; Ilford Medium Iso.; cold platinum A.A. Would have stood more printing; too pale and washed out.

Genling, J. A. G. (Illinois).—"Interior St. Luke's Church, Evanston, Illinois." Voightlander, *f*/32; 6 minutes, Dec., good light, 10.30 a.m.; Carbutt orthochromatic; Solio, combined. A very fine print and highly commended.

Taylor, C. D. (Manchester).—" Dryburgh Abbey." Optimus R. R., *f*/32; 10 sec., Sept., mean light, 4 p.m., Ilford ordinary; Ilford P.O.P. A capital result, but the suspicion of halation at top tends to spoil it.

Key, T. (Grantham).—" The Altars, St. Mary's Catholic Church, Grantham." Pearson and Denham's doublet, *f*/32; half an hour, April, bright light, 3 p.m.; Ilford rapid; Solio. Negative rather too harsh for gelatino-chloride, and most of the detail in the whites lost.

Niblett, Miss T. (Ledbury).—" West Door, Ledbury Church." Atkinson's R.R., *f*/22; 4 sec., April, bright sun, afternoon; Edwards' Landscape; Ilford P.O.P. A good thing spoilt by over-printing and over-toning.

Rix, J. J. (Lewisham).—" Canterbury Cathedral from the Dark Entry." Mayfield's R., *f*/22; 12 sec., April, dull light, 3 p.m.; Thomas's thickly-coated landscape; albumen. Very good print; commended.

Robinson, G. (Antwerp).—" Architecture, Notre-Dame, Antwerp.' Steinheil's Antiplanat, *f*/11; September, sunshine, 2.30 p.m.; Ilford red label; Eastman's chloride paper. A good thing spoilt by over-printing and over-toning.

Fraser, Mrs. A. (Nottingham).—" Bestwood Lodge." French; 16 sec., April, bright sunlight, 3.15; Ilford ordinary; Ilford P.O.P. Although slightly over-printed it shows careful technical work.

Hutton, Isobel (Lincoln).—" Double Arcading, South Aisle, Lincoln Cathedral." Single landscape; probably about half an hour, between 11 and 1 o'clock; matt-surface paper, ordinary gold toning. A little too flat, but very soft and delicate.

Dermis, P. H. (Switzer' land)—" Old Water Mill.- Lancaster's single landscape, *f*/10; inst., 1-15th sec., March, bright sunlight, 3.15 p.m,; Ilford rapid; bromide (Eastman's) hydroquinone. Spoilt in the developing; a longer exposure to the paper and weaker developer would have produced a softer result.

Kinghorn, O. (Gateshead).—" A Corner in Finchale Priory." Wray's R.R., *f*/32; 2 sec., July, sunshine, 2 p.m.; Mawson Castle, Solio, matt-surface. A clever little study, and commended by judges.

Neill, D. J. (Aintree).—" Font, Aintree Church." Optimus half-plate, W. A., *f*/22; 4 min., June, good light, 3.55 p.m.; Castle 5 by 4; Ilford P.O.P., sulphocyanide and gold. An exquisitely soft print, although slightly over-toned; this is not noticeable, so soft and delicate is the result.

Da Cintra, C. J. (Edinburgh).—" Melrose Abbey, South View." Taylor, Taylor, and Hobson R.R., *f*/22; 3 sec., April, dull, when rain was pouring, 11.30 a.m.; Paget xxx, Eastman's Solio. Insufficiently toned, and whites yellow.

Watson, Margaret (Florence).—" Wells Cathedral." Lancaster's combination front lens, *f*/30; 5 sec., August, 2.15; Ilford ordinary; cold-bath platinotype. At least three inches too much foreground; had some of this been cut off and the building brought more central, a better result would have been obtained.

Dunkerley, V. (Burnley).—"Interior of St. Mary's Church, Studley Royal, Ripon." Five-inch Wray's rapid rect., f/32; 10 min., April, very good light, 11.30 a.m.; Paget xxxxx; Ilford gelatino-chloride paper, sulphocyanide. A little too deeply printed.

Hunt, J. S. (Cheshire).—"Booth Hall, Blackley." Underwood single landscape, f/22; 2 sec., May, bright light, 4 p.m.; Ilford ordinary; Solio paper, sulpho-cyanide and chloride of gold. A little too black at the top of arch. Placed in first twelve by judges.

Beckwith, William (Leeds).—"The Abbey Gate, Bury St. Edmunds." Ross's 8 by 5 Universal Symmetrical, f/22; half sec., May, bright sunlight; Edwards's Inst. Iso. film; Solio paper. Over-printed, and camera was not quite straight.

Taylor, W. (London).—"Holy Trinity, West Hampstead." R.R., f/24; 30 min., September, good light, 3 p.m.; Paget xxx; Eastman bromide. Taken with backed plate. At least 2 in. too much foreground.

Wright, E. T. (Yarmouth)—"Martham Church." Optimus, R.R., f/44; 20 min., September, sunshine, noon; Phœnix; P.O.P. A beautifully soft result, but a little more care in the use of the swing-back would have been an improvement.

Becher, E. F. (London).—"Europe, Albert Memorial." R.R., f/22; 5 sec., May, diffused light, slight rain, mid-day; Thomas' T.C.L.; platinotype. Decidedly flat, and wants trimming down.

Dudley, E. (Exeter).—"Haddon Hall." Wray W.A., f/23; 15 min., August, bright, 2 p.m.; Ilford ordinary; Eastman. "Taken on an unbacked plate; local development to prevent halation; mounted by competitor." Highly commended by judges.

Ellam, J. E. (Yarmouth).—"West Window, Whitby Abbey." Zeiss' Series IV., f/50; 5 sec., May, good light, 11.45 a.m.; Fitch film; Solio, sulphocyanide and gold. Distance very hazy. Slightly over-printed; in the first twelve.

Couch, R. P. (Penzance).—"A Corner of my Drawing Room." Wray W.A.R., 6 in. focus, f/22; 75 min., October, fair outside, 5 p.m.; Ilford ordinary; Ilford P.O.P.; Ilford formula. A good thing spoilt by over-printing.

Macmillan, M. (Rothesay).—"Interior Yacht Club." Euryscope quarter-plate, f/22; $2\frac{1}{2}$ min., February, dull, mid-day; Thomas' extra rapid; Ilford P.O.P.; sulpho. A capital little technical study, but insufficiently toned.

Turner, J. M. (Stoke-on-Trent).—"Morton Old Hall." W.A., Taylor, Taylor and Hobson, f/32; 15 sec.; August. Very heavy sky like thunder, heat oppressive, 1.30; Solio. Considerably over-printed.

Duncan, A. H. (Glasgow).—"Old Hostelry, Cathcart." Taylor, f/8; half sec., March, dull, 4.15; Ilford ordinary; P.O.P., Ilford bath (sulphocyanide). Spoilt by the unequal toning.

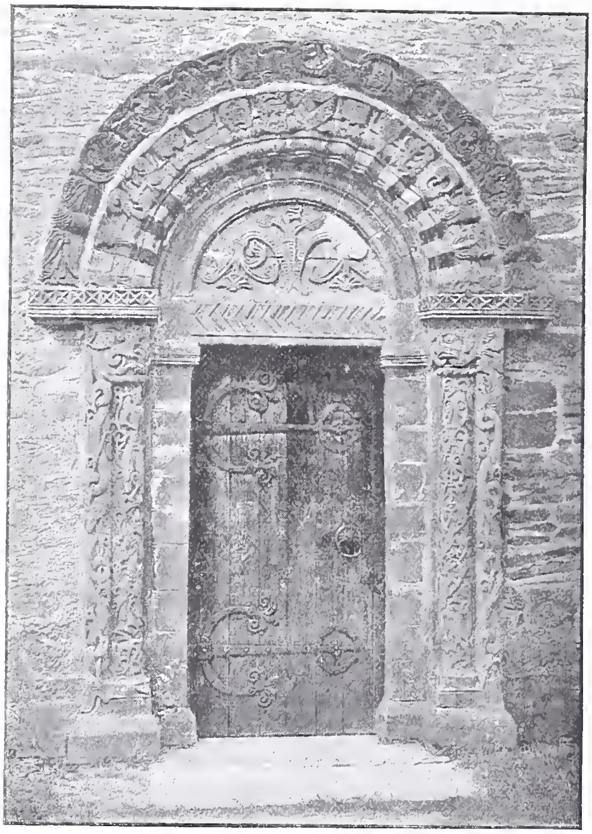
Gray, J. (Glasgow).—"Cathcart Castle." R.R., f/32; 4 sec., April, fair, with passing clouds, 7.10 a.m.; Ilford ordinary; Ilford P.O.P., sulphocyanide. Over-printed, otherwise very good.

Ward, W. F. (Yorkshire).—"A Yorkshire Farm." Single combination of Dallmeyer's 6 by 5 R.R., f/32; 1 sec., April, bright sun, 5 p.m.; Barnet ordinary; Mezzotype, No. 2; gold and sulphocyanide; separate fixing. A capital study, and in the first twelve.

Tylee, C. (London).—"Burnham Church." R.R.; f/22; 3 secs. September, 1892, indifferent light (red sun), 7 p m.; Edwards' Iso.; carbon. Shows very good work; close up to prize winners.

Slator, J. W. (London).—"Lambeth Palace." 16 in. W.A.R.; f/45; 10 sec., March, bright sun, 3 p.m.; Ilford ordinary; Ilford P.O.P.; sulpho-cyanide. Considerably over-printed, but otherwise good.

Lamley, G. (London).—"Interior North Porch, Salisbury." Optimus R.R., f/16; 15 sec., April, good light, 9.30 a.m.; Edwards' Medium Iso. film; cold-bath platinum. Spoilt by slight fuzziness at top.



No. 2.] Killpeck Church Door. [*C. Gethen.*

(BRONZE MEDAL.)

Homer, H. (Leeds).—"S. Door, Adel Church, near Leeds." Wray's R.R., f/8; 2 sec., April, cloudy with sun at intervals, 5.25 p.m.; Ilford ordinary. Over-printed, otherwise good technically.

Tonge, A. E. (Ilford).—"Porch, Greenstead Church, near Ongar." Crouch R.R. quarter-plate. f/22; 1 sec., April, fine and sunny, white clouds, midday; Ilford Iso. med.; Ilford P.O.P., matt. surface; sulpho-cyanide. Over-printed.

Anderson, W. S. (Edinburgh).—"In Modern Athens." Rectigraph (Lancaster), 6 in. focus, f/22; $1\frac{1}{2}$ sec., June, sunshine breaking through mist, 8 a.m.; Ilford Ordinary; Solio. Spoilt by the pinkish yellow tinge over the whole thing.

Montgomery, H (Liverpool).—"The Old Mill, Colwyn Bay." R.R., f/16; 1 sec., April, fairly bright, 10.30; Ilford extra rapid; Ilford P.O.P., sulpho-cyanide amm. Over-printed and over-toned.

Harman, W. E. (London).—"Doorway, Goodrich Castle." R.R., f/32; $2\frac{1}{2}$ sec., April, bright sunshine, 10 a.m.; Ilford ordinary; gelatino-chloride, matt. surface. Spoilt by unequal toning.

Eyre, H. S. W. (Sussex).—"Bolebrook." f/30; 3 sec., July sun, 5.30 p.m.; Ilford No. 18 Mezzotype, borax and gold. Too strong toning and fixing baths have been used, the result is washed out.

Renyon, J. W. (Pendlebury).—"Chapter House, Furness Abbey." Taylor and Hobson's R.R., f/45; 4 sec., April, sunshine, 12.30 noon; Edwards' medium Iso.; cold-bath platinotype. A capital bright result.

Copeman, R. W. (Henstridge).—"Evening at West's Mill, Stalbridge." Beck's R.R., f/32; 1 sec., April, dull, 4.15 p.m.; Ilford Iso.; Ilford P.O.P., sulpho-cyanide amm. Spoilt by over-printing or the pink paper, but technically a capital result.

Williams, J. N. (Kirkby Lonsdale).—Wray's R.R.; April, sunlight; Ilford Iso.; P.O.P. Capital print, though could be improved by more careful toning.

Kingsford, R. T. (Salisbury).—"Bettws-y-Coed Church." Single landscape, f/22; 20 mins., August, bright, 5 p.m.; Edwards' landscape film; cold-bath platinotype, developed with the developing sol. sold by the Company.

Roberts, D. O. (London).—"Southwold Church, Suffolk." Swift's R. Paragon, f/16; $1\frac{1}{2}$min., August, good, 11.15; Fry's K.S.; Ilford P.O.P. matt., sulpho-cyanide. Capital result; commended.

Percy, T. B. (London).—"Exeter Cathedral." Hinton's W., f/32; 8 sec., March, sunshine, 3 p.m.; Phœnix; Ilford P.O.P., Ilford formula. A good print, but very badly mounted; it is now quite free from mount.

Milling, H. (Cheshire).—"The Porch of Rosthorne Church." Lancaster's Rectigraph, f/32; $2\frac{1}{2}$sec., April, sun almost behind camera, 12.15 p.m.; Ilford ordinary; Solio paper. Over-printed and over toned.

Crossley, H. (Rodley).—"Kirkstall Abbey from the N.W." Beck's R.R., f/22; 2sec., Sept., bright sunlight, with clouds around horizon, 4.45; Ilford Iso.; P.O.P., Ilford sulpho-cyanide. Utterly spoilt by over-printing.

Underwood, J. E. (London).—"Castle Ruins, Kirby Muxloe, Leicestershire." Euryscope, f/32; 4 sec., April, very good, 2 o'clock; Ilford Iso., medium; Solio, sulpho-cyanide and gold. Capital print; commended.

Cliffe, W. T. (Yorkshire).—"Choir, Selby Abbey Church, Yorks." Wray R.R., f/22; 20 min., June, diffused light, 4.15 p.m.; Thomas' thickly-coated Ex. R. backed; sulpho-cyanide, Ilford formula. Over-printed and over-toned.

Curle, C. H. (Melrose).—"Cloister Door, Melrose Abbey." Dallmeyer's R.R., 100; about 1 sec., May, sunshine, 9 a.m.; Paget's Prize xxxxx.; Ilford P.O.P.; squeegeed on celluloid. Taken from too near a standpoint; a yard farther back would have made possibly a winning subject.

Smith, Mrs. H. (Belfast).—"St. Thomas' Church, Belfast, South View." Ross' Universal symmetrical, U.S. 64; 4sec., April, moderate sunshine, 10.15 a.m.; Thomas' ex. rapid; Ilford P.O.P. Over-printed; too much foreground, too much sky.

Gamble, T. W. (Leicester).—"Belle Vue, Halifax." Marion's united, 22; $1\frac{1}{2}$sec., April, sunshine, 10 a.m.; Ilford ordinary; bromide, ferrous-oxalate. Print too harsh; under-exposed.

Chamberlain, J. (Tunbridge Wells).—"Old Norman Doorway, Clymping Church." Optimus R.R., f/22; 4sec., Sept., sun bright, 12.50; Ilford ordinary; Solio, borax and gold. Spoilt by the hideous tone due to the use of borax.

Selby, Leslie (London).—"South Door, Lincoln Cathedral." Crouch wide-angle, f/16; 2sec., June, sunshine, noon; Iso.; Edwards' Ex. R.; platinum. Overprinted, flat, and poor.

Erskine, Mrs. E. C. (Melrose).—"South Aisle, Melrose Abbey." Swift's R.R. 64; 5 sec., April, bright light, 3.30; Ilford slow; Ilford P.O.P. sulpho-cyanide. Over-printed and over-toned.

Curle, Margaret E. (Melrose).—"Melrose Abbey from S.W." Dallmeyer's R.R., 100; 1 sec., May 9th, sunshine, 9.a.m.; Paget's Prize xxxxx.; Platinotype, cold-bath, oxalate developer. Underprinted, flat and poor.

Allcott, J. H. (Hull).—"Choir, Fountains Abbey." R.R. Ross, f/32; 10 sec., April, about 3 p.m.; Thomas' thickly-coated; albumen, borax and chlor. gold. Printed too deep.

Stockdale, R. (Leeds).—"The Abbey Gateway, Bury St. Edmunds." Ross R.R., f/32; 6 sec., April, 2.30 p.m.; Ilford ordinary; gelatino-chloride Ilford P.O.P. Spoilt by over-printing and overtoning.

CLASS II.

Morris, O. R. (Anglesey).—"Cemaes Bay Bridge." Lancaster's Silver Ring Rect., f/8; 3 sec., March, strong sunshine, 2 p.m.; Morgan and Kidd; albumenised paper.

Pearce, R. D. F. (Cambridge).—"Grantchester Church." R.R., f/40; 75 min., May, sunlight, 2 to 3.15; Eastman's extra rapid bromide; Ilford P.O.P., matt on glass, sulpho-cyanide (separate).

No. 3.] St. Paul's from S.W. [*A. R. Berry.*

(CERTIFICATE.)

Robinson, H. J. (Lewes).—"An Old Sussex Farm House." Lancaster's single, f/20; 2 sec., May, good light, 9.30; Ilford ordinary, developed hydroquinone; Ilford P.O.P.

Ainsworth, S. T. (Manchester).—"Eaton Hall." Wray's R.R., f/32; 1 sec., July, sunshine, 10.30; Ilford ordinary; Ilford P.O.P., sulpho-cyanide; taken between showers.

Clapham, C. L. (Bexley).—"Gateway of Hever Castle, near Tonbridge." French f/32; 5 sec., August, rather dull light, between 2 and 3 o'clock; Thomas' extra rapid.

Groome, R. T. (Acton).—"St. Mary's, South Hayling." Taylor and Hobson's R.R., f/22; $2\frac{1}{2}$ sec., Sept., dull, threatening rain, windy, 11.15 a.m; Ilford ordinary; Ilford P.O.P.

Tetley, A. S. (Bristol).—"Gloucester Cathedral—South Aisle of Nave from S.W." Hockin, French make, wide-angle, f/44; 5 sec., May, moderately bright, sky overcast, 5.30 p.m.; Barnet (Elliott and Son); platinotype cold-bath A.A.; negative taken under unfavourable circumstances; day very windy and dull.

Arnold, J. O. (Sheffield).—"The East Window, Beaumaris Church." Wray R.R., f/32; 1 sec., July, strong sun, about 10 a.m.; Edwards' Iso. Inst.; Solio, sulpho-cyanide and gold chlor., hypo.

Suddington, J. S. (Littleport).—"Clare College Bridge, Cambridge." Wray's R.R. 8 by 5, f/22; $1\frac{1}{2}$ sec., April, bright sunshine, about 10.45; Ilford Iso., medium; platinotype cold process.

Judson, T. B. (Worcester).—"Ann Hathaway's Cottage, near Stratford-on-Avon." Optimus R.R., f/16; 1 sec., Whit. Monday, sun, about 3 p.m.; Castle; new cold bath platinotype.

Forrest, J. W. (London).—"South Hackney Parish Church." Lancaster's Instanto; 45 min., April, bright outside, 11 a.m.; Ilford ordinary; Ilford P.O.P., sulpho-cyanide of amm. and gold.

Mangham, P. W. (Sheffield).—"Doorway, Priory Church, Bridlington." R.R., W.A., f/32; 3 sec., Aug., fairly good light, 2 p.m.; Phœnix; chloride paper, sulpho-cyanide.

Bain, E. G. (Florence).—"A Florentine Drawing-room." Unknown; 3 min., sunlight, 11 a.m.; Excelsior.

Pullman, E. E. (Surbiton).—"St. John's in the Wilderness," Exmouth, South Devon." Beck's Rapid Autograph, f/16; 12 sec., Feb., dull, late afternoon; Ilford White Label; Eastman's bromide.

Ironside, A. A. (Surrey).—"Chessington Church, Surrey." Lancaster's inst., f/16; 1-5th sec., April, bright sun, 11.30; Paget Prize xxx.; Ilford P.O.P., sulpho-cyanide.

Cumberland, W. B. (Bristol).—"Tintern Abbey." Hockin's R.R., f/44; 5 sec., Aug., sun, 2 p.m.; Paget Co.'s Phœnix; Ilford P.O.P., combined toning and fixing; taken on a dull day with bright intervals.

James, T. (Worcester).—"The West Window, Tintern Abbey." R.R., f/32; 8 sec., April, dull, 5.30 p.m.; Mawson and Swan's Castle; Ilford P.O.P., sulpho.

Whitmore, E. M. (Essex).—"The Whitmore Chapel in Orsett Church, Essex." Rapid rectilinear, f/32; half an hour, April, bright, 1 to 1.30 p.m.; Ilford ordinary; Marion's albumen paper; Fallowfield's combined toning and fixing bath.

Matthews, F. J. (Chelmsford). — Rapid Euryscope Optimus 7 by 5, f/32; 5 sec., March, sunshine, bright, 4.30 to 5 p.m.; Ilford slow; Ilford P.O.P.; bath recommended for above, sulpho-cyanide of amm. developed with pyro and ammonia.

Dawson, A. J. (Cardiff).—"Llanthony Abbey, Monmouthshire, from the South Transept." Lancaster's half-plate Instanto, f/20; 4 sec., July, bright, 12.20 p.m.; Ilford ordinary; Eastman's Solio, tungstate of soda.

Corbett, J. (Warwickshire).—"Grimshaw Hall, Knowle, Warwickshire." Lancaster's Instanto., f/30; 6 sec., March, bright sunlight, 3 p.m.; Ilford ordinary; Ilford P.O.P.

Jones, G. J. (Malton).—"Priory Church, Old Malton." Ross' R.S., f/32; 25 min., September, diffused light, 3 p.m.; Ilford; silver acetate.

Towse, J. S. (Catford).—"Suspension Bridge, Conway, N. Wales." Wide-angle, f/32; 3 secs., September, very good, 11 a.m.; Ilford slow; Solio.

Bishop, T., Jun. (Helensburg).—"Dalmore House, Helensburgh." Ross', f/16; 6 sec., March, good, 11 a.m.; Paget xxxxx.; Eastman Solio; chlor. of gold.

Pemberton, J. P. (Finchley).—"Albury Park Church." London Stereoscopic Black Band, f/44; about 3 sec., April, sun shining, 1 p.m.; Castle plate; Platino.; cold bath.

Baker, J. W. (Rotherham).—"Dunham Church." Lancaster's R.R., f/32; 3 sec., May, good, 11 a.m.; Barnett; albumenized paper.

Jenkins, G. W. (Croydon).—"Choir, Canterbury Cathedral." Optimus wide-angle, f/5; 25 minutes, April, 11.15 a.m.; England's ordinary films; Ilford P.O.P.; sulpho.-cyanide and gold.

Hay, E. G. (West Brighton).—"Interior of St. Alban's Abbey." Optimus R.R., f/22; quarter of an hour, January, bright sunlight, 1.30 p.m.; Ilford ordinary; Ilford P.O.P.; no backing was used on the plates, and the developer used was "Optimus" dry powder developer.

Tabor, H. S. (Braintree).—"Finchingfield Church, West Door, Essex." Lancaster's "Meritoire," f/40; 4 sec., March, bright sun, 1 p.m.; Ilford ordinary; Platinotype ditto; not touched up in any way.

CLASS III.

CLOSE, G. W. (Wolverhampton).—“Entrance Gate to Tettenhall Towers.”
BOLTON, W. (Bolton).—“Turton Tower, Eastwing.”
ARTHURTON, A. W. (S. Croydon).—“Southwold Church, Suffolk.”
NORTON, J. W. P. (Sheffield).—“The Courtyard, Burton Constable Hall, Yorkshire.”
WESENCRAFT, H. H. (Tynemouth). — “Interior of Otterburn Church.”
ISAACSON, J. (Liverpool).—“A Private Residence.”
CHRISTIE, T. (Manchester).—“Mellor Church, near Marple.”
VARLEY, F. J. (Oxford).—“Dean's Yard, Westminster.”
ELSBY, F. H. E. (Liverpool).—“Moreton Old Hall, Cheshire.”
PREEN, G. N. (Kidderminster). — “King Edgar's Tower, Worcester.”
ANDERSON, K. (Kent).—“Lesney House:”
CURRIE, M. H. E. (Wrexham).—“Valle Crucis Abbey, Llangollen, N. Wales.”
SMITH, J. K. (Yorkshire).—“Adel Church, Norman Porch, Adel.”
STUBBS, J. B. (Manchester).—“Manchester Crematorium.”
RANDELL, J. M. (Horsham).—“Home, Sweet Home.”

Nearly all the prints in this class are characterised by drunken architecture, due to not nsing the swing-back or not levelling the camera.”

Plymouth and District.

BY F. W. PILDITCH.

WHEN it was announced that the Photographic Convention for '93 would assemble at Plymouth, I thought how well would the visitors to the ‘land of all fair things’ be repaid for the trouble (shall I say?) of getting there. I will *not*, however, say ‘trouble,’ for the facilities offered by the various railway companies reduce to a minimum the tediousness of long travel, and their system of ‘through carriages’ is a great boon to those undertaking lengthy journeys. However, be ye from the North, South, East, or West, all inconvenience will be forgotten in the enjoyment which your destination subsequently offers, and I avow that when you are once there you will be loth to leave such a spot, and, having left it, you will long to revisit it yet again and again, for

> “*If there be an elysium on earth, it is this, it is this.*”

But I am writing, not to apologise for the geographical position of the district, but with the intention of placing before my readers a few remarks about the many lovely haunts of this *harvest field* of the camera. Let it not go forth that I or my article presume to pose as a guide to the Convention. Far from it; my sole idea is to give my *amateur* brothers (and sisters, I hope) some hints regarding What to see, When to see, and How to see. My readers may or may not know that the term Plymouth is usually employed to inclnde what is locally known as “The three towns:” Plymouth, Stonehouse, and Devonport, and to those who, like myself, have to keep the ‘change-bag’ from quickly getting empty, let me say that comfortable apartments may be easily obtained on very reasonable terms at either place, but more especially at Devonport. It is here I advise my friends to locate themselves, as they are then close to the ever-varying banks of Tamar (“great river”) and only a twopenny tram ride from the heart of Plymouth proper, where visitors will be deeply impressed with the motley sights in the streets of this rendezvous of ‘all sorts and conditions of men.’ Here then is a golden opportunity for the “snap-shottist,” so take my advice and never go out withcut your hand-camera, or you will not have gone a mile without regretting its absence. For life and activity the town might well be called Lesser London, and yet so different in every respect. Soldiers, sailors, and picturesque groups meet one at every turn, and material for winter lantern work is abundant.

There are many reasons why the selection of Plymouth for the Convention outing should be held in high favour. It is a field for the full and perfect exposition of every side of photography, be it scientific, architectural, or artistic. The geologist with his camera will find ample scope for reproduction of prints, for here are the noble rocks of the Paleozoic period inviting his attention on every hand. The photographic botanist will be able to satisfy his cravings, and obtain specimens, for future preparations of views, for in the valley of the Tamar grow some of the choicest ferns and plants of no common order; in fact, some of the rarest of ferns so well loved by those who study our native flora are only to be found in the vale of this well-favoured stream. Again, I suppose no part of England or Wales can boast of such *architectural* specimens. Churches throughout Devon and Cornwall, abounding in some of the finest carving and decorative art, entice the lovers of architectural photography to spend many of their days in this land of wonders left by followers of Bishop Grandisson (who designed the nave of Exeter Cathedral, 12th century), and who have prepared for generations yet to come, specimens worthy of imitation by them and their descendants. I could continue on topics such as these, but I must remember that my paper is to act as a guide to and not a textbook of the particular resort in question. As to the art side of the subject, I shall leave it to you, for if I ventured to depict its attractions, you who go would say, like Sheba's Queen is supposed to have said of the glory of Solomon, that one-half had not been mentioned.

Now for a little of the practical part of my paper. Take heed, you who come from the interior, for you will be much surprised at the increased actinism of Devonian light. The moisture which is always present (but not always pleasant) renders the distant landscape as clear to the eye as would *f*/64 to the sensitive film of a dry plate; and above everything don't forget to take *Messrs. Only-Good-Make's* quickest shutter with you, as before you have been there very long you will find a necessity for its use. Expose and develop a plate or so before you begin work in earnest, and you will not then be disappointed with your after-results. Excellent accommodation for this purpose may be had at Messrs. Heath and Co.'s, George Street, Plymouth. They also deal in all kinds of apparatus, and keep a good stock of all the principal dry-plates now on the market. I can speak from experience of their dark-rooms, and of the kind and civil attention shown by all in charge, but this is characteristic of all Devonians, and is shown even to those pestering articles, sometimes called “*amateurs*.” If plates are purchased at Messrs. Heath's, the slides may be charged or recharged on their premises gratis, while for development the cost was only a shilling (using one's own developer). I should say that the dark-room placed at my disposal was one of the many used by them in their professional business, with everything clean, handy, and ready for use, though I was a stranger to them. I took care to leave ‘unstained what there I found,’ as prim as I received them, and my advice to my fellow ‘tripoders’ is “*Do likewise*.” Of course, there are many other dark-rooms, as the borough abounds with photographers, and undoubtedly the club-rooms of most of the local societies will courteously be placed open for the use of Convention guests, as I am confident my Plymouth brethren will be sure to do right royally by them; they never do things by halves down that way, not they! One thing further would I advise all to take, that is a *waterproof* focussing cloth, as, rest assured, if the weather be showery, such will be necessary if you want to preserve your appliances from damp and injury. Another ‘tip’: do not attempt to photograph on or from Government ground, unless you want to find yourselves, as I did, in the hands of the law; but more of this anon.

I shall now describe somewhat in detail a *few* of the places which to me appear the most suitable for camerists to visit, and I would suggest that those wishing to act independently (though I sincerely hope the “*independent*” ones will be few and far between) should dot down in their pocket books the following list of six places to visit outside the area of Plymouth itself:

River Tamar. Including the St. German's River.
Mount Edgcumbe Park. Open on Wednesdays, or by permission.
Bickleigh Vale. Open on Mondays, Wednesdays, and Saturdays to the public.
Yealm River. Small steamer trip.
Looe, in Cornwall. Steamer trip.
Dartmouth, in Devon. Steamer trip.

Do not miss these places if you can possibly visit them, as, while they are among the best known of the many enjoyable districts of the neighbourhood, their beauty is such that would rouse the minds and excite the admiration of the least enthusiastic observers of nature.

Beginning with the Tamar, I shall take seriatim each of the places mentioned in my list, and give a short account of the method of reaching it and of the chief points of interest which may prove attractive both for views and pleasure.

In the first place I shall describe a trip by boat up the Tamar, and shall then give a few hints of the best means of photographing *in extenso* “the gentle stream in all its aspects gay.”

“*Tamar*.” — Reaching Plymouth Hoe, and descending to the Promenade or West Hoe Piers, the usual ringing of bells and shrieking of whistles direct us to our steamer. We start on our trip up the “Great River.” Now I make bold to say that, next to the Thames, this famous stream is the most historic in England. Its ancient traditions are well known by all lovers of Devonian and Cornish history. Kings, queens, and princes have enjoyed and praised its beauty; on and near its banks are ancient mansions whose records astonish even our modern archæologists. Photographs of many of these should be obtained if possible, because behind their walls and in their precincts are some of England's landmarks. Our course now lies between the famous MOUNT EDGCUMBE PARK on the left and the KING WILLIAM IV. VICTUALLING YARD, STONEHOUSE POOL, AND DEVONPORT DOCKYARD on the right. Opposite this is the pretty little landing place of Cremyll with its Swiss-like building. Turning again to our 'right' we note Keyham Yard, but before reaching it we shall see one or two landing stages. The one before we come to Keyham Steam Factory is called Pottery Quay Pontoon," and is the one used by visitors to Devonport, as steamers for most of the trips by sea or river call here for passengers. Further north on the same side is the Naval College. The stream, which is now nearly a mile wide, is known as the Hamoaze, being the estuary of the three rivers Tamar, Lhyner, and Tavy.

The vessels of the basin I shall not attempt to deal with, but visitors will not fail to notice that on the trip they pass between two long lines of 'sheer hulks' of famous ships (now obsolete in pattern) moored up stream, and which are in such a state of semi-decay that, to natives, this particular locality is known as '*Rotten Row*." Hand-cameras will again prove useful here, and specimens of England's aforetime glory will be secured. We now see on our left the St. German's River or Lhyner, as its other name commonly asserts. Yet again to the right we see the powder and ammunition factory at Bull Point. Avoid this place. For why? I will explain:

From here you get a splendid view (distanced) of the Saltash Bridge (750 yards long, 10 yards wide, 100 feet above high water; cost £250,000); and last year, thinking to avail myself of this vantage ground, I visited it (allowable), erected my camera, and was in the all-absorbing act of focussing, when I felt a light touch on my shoulder, and on looking up I beheld a 'gentleman in blue.' The following conversation ensued. Said he: "Have you permission to sketch here, sir?" Said I: "No, I am not sketching, I am photographing." "Then," said he, "if you have no permission to sketch"—who will now doubt the affinity between 'Art' and 'Photography'?"—"I am sorry to say you must come before the captain." Of course, I could not object, so I went. I was perfectly aware that I was not allowed to photograph *Government works*, but I was quite aware that I even *stood* upon their grounds.

In due course the captain arrived, and explanations on both sides followed, and when he pointed out that the 'authorities' had to be very stringent on account of the magazines, etc., I quite understood why I had been "hauled up." I received permission, however, to photograph from the Point, and I verily believe, from the merry twinkle in his eye when he saw my predicament, that he was himself a photographer. The steamer carries us beneath the bridge, and it is not until we get under it that we realise the vastness of that enormous structure, which records the greatest and last engineering achievement (1854) of J. K. Brunel. The little township at the Cornish extremity of the structure is Saltash. ("The town returned two M.P.'s till 1832, was once the controller of Plymouth Sound, and levied dues on all vessels.") Upon payment visitors may walk on to the bridge from here. In itself it is a most historic town, dating back centuries before the Black Prince, who is said to have organised the ferrying, by giving the power to an old retainer. Our boat now carries us past the Tavy on the right, opposite to the mouth of which is Landulph Church with its remains of "Theodore Paleologus (*d.* 1637), a scion of a famous race" (see Baedeker's Great Britain). On the left we see the little village of Cargreen, and on the other side, three miles beyond Saltash, is Hole's Hole. Walk to the top of the hill close at hand, and refresh yourself with the delightful view, and if you have a "telephoto lens" secure a picture worth having. This must, however, be undertaken some other day, as our steamer trip does not include landing at all these places. Starting again from Hole's Hole we now steam to Pentille Castle. If permission is obtained, and time is at our disposal (sometimes one hour for landing allowed), do not fail to see and *photograph* the wooded beauties of this private estate. This is a famous strawberry district, 100 tons in a season being frequently exported. Six and a half miles from Saltash is Cotehele with its famous tudor mansion (permission obtainable to view same). Now comes one of the most Swiss-like scenes of Tamar views, viz., the noble stretch of woods on the left and the Chateau-like Ashburton Hotel right in front of us. From the field on the right a perfect picture can be obtained, both from a composite and artistic sense.

We now reach Calstock on the left. Should you want any refreshment (one hour allowed for landing) you can get a meal fit for a king, if you will only visit the Railway Arms on the opposite side of the river, and there also will you find what true hospitality is like at a reasonable rate. Having refreshed yourself, proceed on your way, for we are now to steam up the most beautiful part of the river, which we shall soon witness in all its Rhine-like glory. As you will see, the densely-wooded and hilly banks add to this noble scene a charm (to photographers) hardly describable. Unfortunately, however, industries, ancient and modern, have left, or are leaving, *their* unpicturesque reminders behind them. On our right we see what here is a new commercial speculation of brick-making, while the bareness of a group of trees, in one place, at least, naturally raises the question: What is going on here? Yellow iron pyrites is being burned for the production of arsenic. In this one spot are we reminded of the words of Byron:

> ' Man marks the earth with ruin."

But from there we glide under wooded hills upwards of 200 ft. high, on and on, until we come to the highest of them, which here stands out as a precipitous wall of rock 300 ft. in height, and known as the famous Morwell Rocks. Had we been standing on the top instead of steaming along the base, we should see a view which, to my mind, cannot be equalled in England. No *photograph* could amply depict it. View it for yourselves, as I did, in the glowing beauty of a summer sunset, and behold the turn and twist of the silvery stream winding its course to the sea; through "woody vale and meadow glad," and then, my sceptical photographic friends, say if I told you wrongly.

We now arrive at the Weir Head, the outward half of our trip (twenty miles from Plymouth by water, about ten by land) being completed. Our steamer turns, and for another couple of hours we are to enjoy the counterpart of the beauty that had previously held us in its enchanting grasp. I might here say, however, that beyond the Weir Head, with its artificial waterfall, the same class of scenery may be enjoyed, for small boats passing through the lock go much beyond this point.

The chief attraction of this part of the river for devotees of the camera consists in the numerous little incidents which occur, and their effect upon the scene. Boating parties standing out in bold relief against the heavy background of hills; reflections, ever varying, giving animation even to the still waters, exacting from the *lens man* full consideration as to lighting, stop, exposure, etc., add a piquance to our enterprise.

It would be absurd to suppose that much photographing beyond hand-camera work could be accomplished on a half-day trip up so noble a river. But you *must* make this journey and take notes of views suitable for another visit. Then go again by road or rail,—for though we have steamed twenty miles up stream, you will be surprised to hear that from Hole's Hole to Calstock by land is only a two miles' walk, and from thence to the Weir Head not more than four. Now, my advice to our photographic companions is, make Calstock your headquarters for a day or so, order on a few extra dozens dry plates, and being armed '*cap-a-pie*' set forth for a reproduction of river, hill; sun and shade; and combinations of each and every one, all seeming in their smiling beauty to extend a welcome to the Convention gathering. I have been somewhat at pains to describe this district rather more fully than I had at first intended, but my idea is that this is '*the*' district which offers the chief attraction to those who take 'pure landscape' and who intend to do so with the Convention.

On the Lhyner, a tributary which we noticed on our left or the Cornish side, before we reached Saltash, stands St. Germans with its ancient church, dedicated in the middle of the thirteenth century, on a site of a religious house erected by Ethelstan. This church is said to contain a magnificent doorway among its other famous architectural work, but not having myself visited this particular building I can only make the above statement concerning the edifice on the authority of a friend.

(*To be continued.*)

Prof. Burton on Density Ratios.*

To the Editor of *Photographic Scraps*.

Dear Sir,—It must now be going on two years since we had some correspondence on the question of compensation, in development, for variation in exposure, and you gave me most material help in connection with a set of experiments that I was then conducting.

By the time you receive this it will be so long since you have heard of the said experiments that I fear you will have come to the conclusion that they were abandoned, or that they failed to establish what I wanted to establish, namely, that we have, by variation in the developer, the power to compensate very greatly for variation in exposure.

The experiments, which were extensive, have never been abandoned, but have several times "hung fire" on account of other work, of accident (including earthquakes), etc., but they are now, at last, in a very forward state, and have resulted in proving conclusively that the permissible latitude in exposure with dry plates is even greater than I had supposed.

Briefly, the results I have arrived at are as follows:—It is possible to vary the exposure as 1 to 40, and yet to get negatives giving prints that are identical, or that are, at any rate, so nearly similar, that an experienced photographer cannot tell which is from the negative that has had the longest exposure. By this I mean, that if one second is the shortest exposure that will give a really good negative with a certain kind of plate I can give a second plate of the same kind an exposure of 40 seconds, and get a negative that has no appearance of being over-exposed, and that will give an excellent print. The negatives can generally be distinguished by the difference in colour of the image. In some cases I have succeeded with exposures varying as 1 to 80. This is, moreover, using the same developer, namely, pyro, with carbonate of soda—my favourite developer now for some years—merely varying the proportions of the ingredients, and without recourse to intensification. By using entirely different developers it would be possible to compensate for greater differences. Moreover, the subjects selected were ordinary landscapes. By selecting a special subject, mostly very deep shadow, with only a small proportion of high light, it would be possible again to compensate for greater differences in exposure. I send you, herewith, prints from two negatives, one of which received an exposure of three seconds (with an extremely small stop), whilst the other, exposed immediately afterwards, on a plate from the same box, using the same stop, received an exposure of one hundred and twenty seconds. I have marked on the back of the prints, which represents the three seconds exposure, which the one hundred and twenty seconds, but I should like you to try to tell, from the appearance of the prints, which is which, before looking on the back. I hope you will be able to reproduce these prints in *Scraps*, and I leave it to your discretion whether you tell your readers which has received the longer exposure, or whether you will ask them to give their opinion as to which has.

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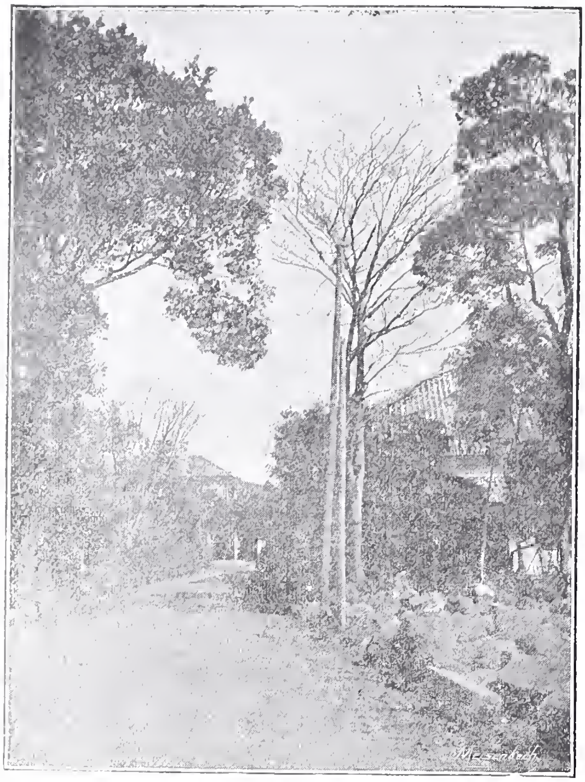
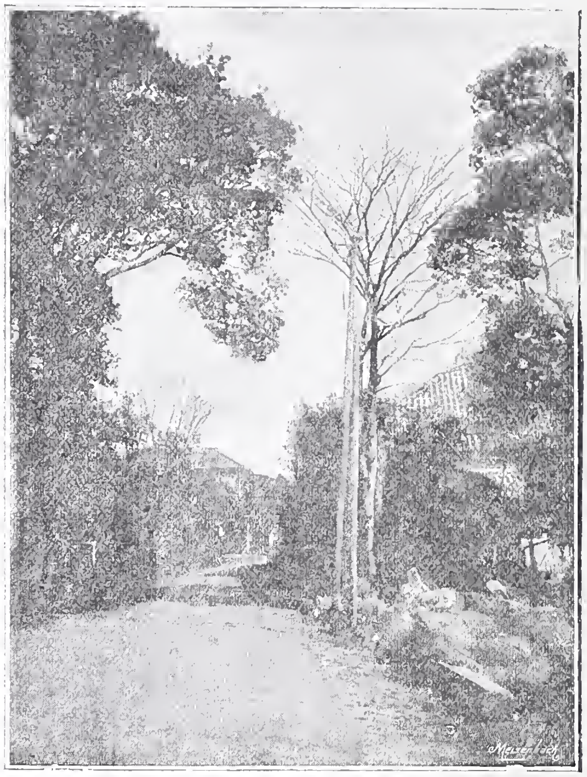


3 Seconds.



120 Seconds.

The plates used were, I may mention, such as are sold as "ordinary," but are of very fair rapidity, even as plates of the present day go.

There is no great secret in the method used. The first plate was developed with the least quantity of pyro that would give sufficient density, one grain to the ounce of developer, and a mere trace of bromide, 1-5th grain to the ounce, used to restrain a slight tendency to incipient fog. In the case of the second plate the pyro was increased to eight grains to the ounce, and ten grains of bromide of potassium were added to each ounce of the developer. The development was complete in the case of the first plate in about five minutes. In the case of the second it took twenty minutes.

How, it will be asked, is this statement compatible with the dogma that the density ratios cannot be altered by development? Even after allowing for the difference between "density" and "opacity" as used by Messrs. Hurter and Driffield, it is not compatible at all, and it is, as a matter of fact, possible to vary the density ratios enormously in negatives by development. To demonstrate this, it is only necessary to expose two plates on a landscape, giving normal exposure. One is developed so as to give what would be understood as a "good" negative. That is to say that, amongst other things, it shows all, or nearly all, the shadow detail that is visible to the eye, and that the high lights are represented by a certain density. Now it is quite easy to develop the second plate so that very little more than the high lights are visible at all, yet these high lights are much more dense than in the case of the first negative. It is evident here that neither the "densities" nor the "opacities" can bear the same ratio to each other in these two negatives. In fact, if two "density curves" were drawn they would cross each other.

Assuming certain conditions, actually never present in photographic practice, it seems to be true that it is not possible to alter the ratio of density by development. Thus, in the first place, it would appear that, within very wide limits, density ratios cannot be altered by variation in the developer, if this, whatever its composition may be, be used till all action ceases; this, of course, allowing for a maximum density possible with any particular plate.

Again, it is certainly impossible to detect any difference in density ratios if the range of insolation is limited. For example, giving different parts of a plate exposures varying at one, two, three, four, five, six, seven, eight, nine, and ten, I certainly could not undertake to produce any difference in density ratio by variation in development. It is necessary to have ranges of exposures of at least several hundred to one to be able readily so vary the density ratios.

The reason why, in the case of a plate that has received a wide range of light, it is possible to alter the density curve is principally that whereas a soluble bromide retards the development of detail and also the increase of density, it retards the increase of density much less than the development of detail. It is thus possible, by using a developer with large quantities of bromide in it, to alter the ratio of density from what it would be without bromide by stopping long before the action of the developer has gone as far as it would go.

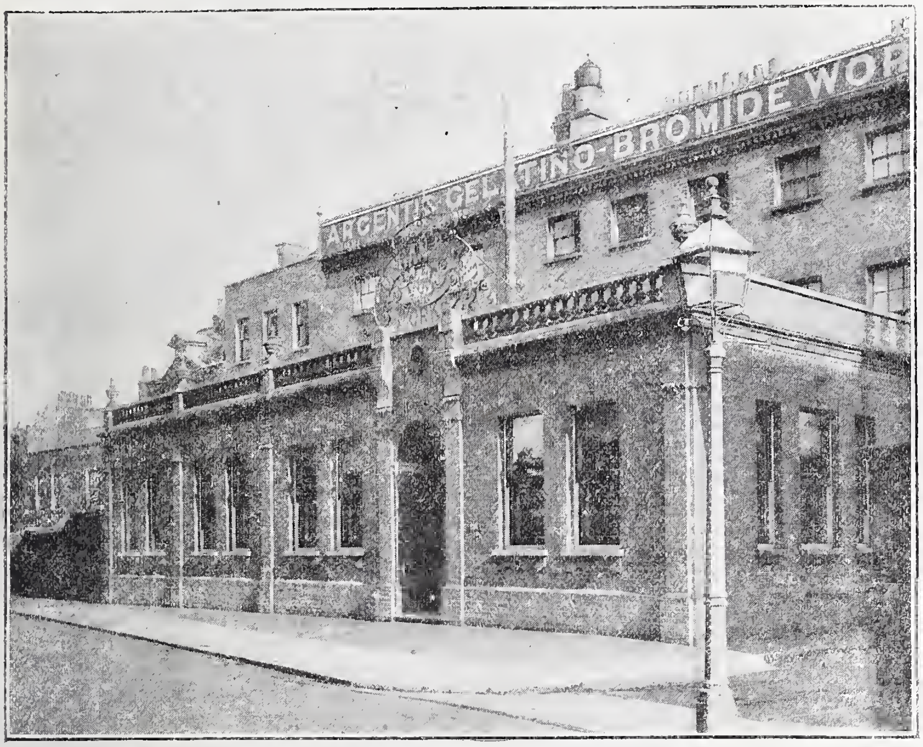
I have by no means confined myself to camera exposures. On the contrary, by far the greater number of my experiments have been made with a form of sensitometer that I have devised. In this, plates 12 by 2½ in. (12 by 10 plates cut in four) are used. Transverse strips of these plates receive direct exposures to light, varying as 1, 2, 4, 8. . . . . 519·2. The plates are afterwards cut into two halves, longitudinally, and these halves can be developed separately by any two developers that it is required to compare.

Many hundred exposures have been made with this instrument. It would take far too long to describe the results here. I hope to be able to communicate them in full to some society in England this summer.—I am, etc., W. K. Burton.

Our Town Traveller.

MORGAN AND KIDD, ARGENTIC GELATINO-BROMIDE WORKS, RICHMOND.

AWAY from the smoke and grime of the city Morgan and Kidd have pitched their tents at Richmond, and on a brilliant morning we found our way there. The factory is a substantial-looking red brick building, fronting on to the Richmond Athletic Grounds. Entering we found numerous lady clerks busy, and soon, under the guidance of Mr. Kidd, went over the whole works.



Front Elevation of Messrs. Morgan and Kidd's Works, Richmond.

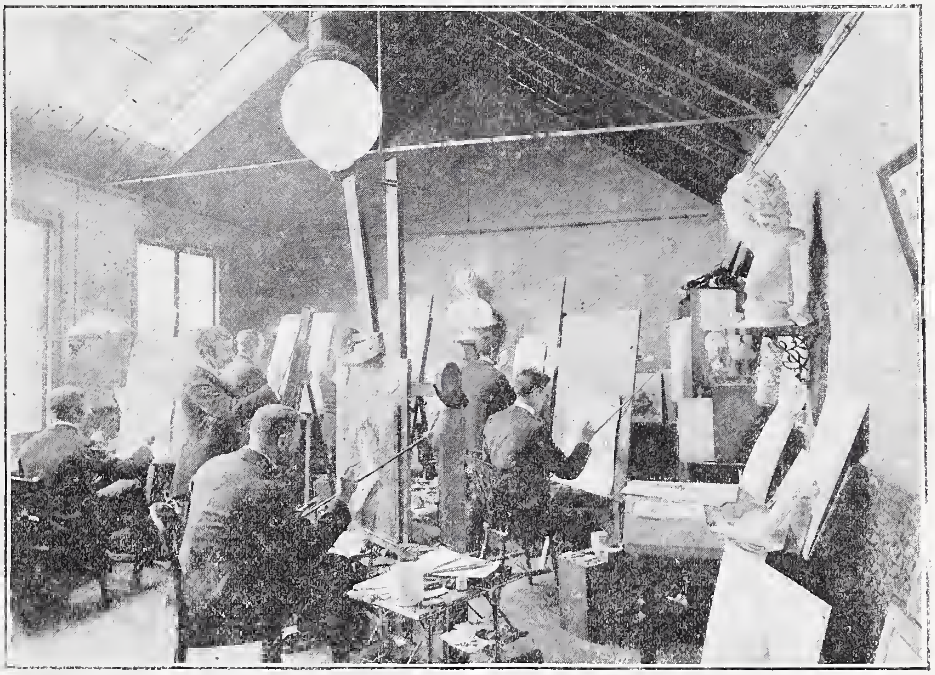
Our first visit was to the filter. Thames water is used and passed through a huge filter, which is cleansed every morning by blowing steam through it, and the dirt and filth which is thus ejected is astonishing. Thames water is used in preference to that from the waterworks, as containing less lime salts. Hence to the engine-room, where an "Otto" gas engine drives a dynamo which gives 95,000-candle power, huge arc lamps being used for enlarging in the dull winter weather.

So noted are this firm for their enlargements and opals that we must, of course, see one or two exposed and finished while we looked on, and we learnt one or two practical hints which will be useful to our readers. In the first place large reflectors are used in preference to direct skylight, the illumination being much more even and regular. Secondly, caps with yellow glass screens are used, which allow the operator to see exactly how to pin his paper up; thirdly, for vignetting very small apertures in sheets of cardboard are used, and by moving these nearer to or farther from the lens very soft vignettes are obtained. Another advantage of small apertures is that by placing the same near the paper more exposure may be given to any particular part of the picture, and this may still further be improved by placing the fingers partly over the aperture. For developing, ferrous oxalate is still the only developer that Messrs. Morgan and Kidd use, and they claim better results with it than any of the newer ones. Fresh developer is used for each enlargement, though when special brilliancy or contrast is required development is commenced with an old developer. After developing and clearing, the prints are taken to another room to be fixed, and here we learnt a useful tip, and that was to place the enlargement on a big sheet of glass and vigorously use a squeegee to remove the adherent hypo solution. Washing is effected in large tanks with water supply, so that the prints are kept in constant motion.

From the print enlarging room we went into the room where enlargements on opal are made, and here the operator informed us that after working bromide paper it took him some time to get used to working opals, and *vice versa*. Opals, we were also informed, required to be left in the fixing bath at least four times as long as paper prints, in consequence of the difference of support.

Before leaving the enlarging room we particularly noticed the arrangement used for fastening the paper or opal on the easel, which allows of easy and exact adjustment of the same, being a species of long tongs.

The next room was devoted to contact bromide work, and a very ingenious arrangement is used here: a sheet of paper is clamped on a felt-covered board and slid into a species of upright printing frame which holds the negative fixed by means of levers and clamps, allows the paper to be shifted and brought into absolute contact for each exposure. Six prints are exposed one after the other and simultaneously developed. In the same room also we saw the arrangement for making the huge bromide enlargements, 8 ft. by 53 in., and by a small moveable table the huge dish necessary to develop such a large print is manipulated as easily as a 12 by 10 print. A magnificent enlargement of this size reposes in one of the private offices, and, comparing



One of the Artist's Rooms.

it with a contact print from the original negative, we can safely say that the enlargement, so far from having lost anything, is, if anything, superior to the contact print in softness and delicacy.

Carbon work is a speciality which certainly is turned out in excellent style by this firm, and we saw the huge frame, 52 by 36, for contact printing, which runs on iron rails and can be manipulated with as little trouble as small prints. In connection with this department we saw the production of enlarged and reversed negatives for carbon printing, and were glad to find that the "Richmond" dry plates were alone used, Mr. Kidd assuring us that equally fine (if not finer) results were to be obtained as with wet collodion plates—an opinion we have long held.

The machine for coating the paper is a marvel of ingenuity and utterly beyond anyone but a mechanical engineer's powers of description. Paper in rolls 53 in. wide is coated by this machine with a regularity and evenness which the high reputation of the well-known commercial article speaks so forcibly for.

The collotype department we have already described fully in these pages, and here, under the management of Mr. Berghoff, the steam and hand presses are busy turning out excellent quality of work. The final visit is to the artist department, where retouching, spotting, finishing, and colouring of enlargements goes on, and in the winter art classes are held for the operators; and to the framing and gilding rooms, where all the frames for enlargements are made.

Although not so well known as their bromide paper we can honestly recommend the "Richmond" dry plates, the production of this firm, and a special stripping plate is made at 1s. 6d. for quarter plates, etc.; and a heavily-coated slow plate for photo-mechanical and copying purposes.

Messrs. Morgan and Kidd also make a speciality of daylight enlarging apparatus, which is the same as used in the factory, and very complete sets for enlarging up to 23 by 17 is offered for £8, consisting of camera, easel with guides, six glass-bottom dishes, squeegees, vignetting masks, and three dozen sheets of paper of various large sizes.

A new catalogue has just been issued by this firm, containing full and complete prices for all their specialities, and the covers are printed with designs in collotype which add considerably to its appearance and speak well for the quality of their work.

Dark-room Jottings.

By W. PITCAIRN CRAIG.

HAPPY is that photographer who can command the exclusive use of a dark-room but as such good fortune falls to the lot of few of us, the next best thing one can have is a good large press with plenty of shelves and a strong lock. In this should be kept chemicals, plates, apparatus, and in fact everything that can be in any way injured by being used for purposes to which the inventor in his wildest imaginations never dreamed of its being applied. Few things can be more "riling" to a photographer than to find his best new camera used as a domicile for Tommy's white rats, or his "Watkins" handed over to baby to play with—for, "*what* harm could the little darling do the horrid thing?" his pyro thrown out, because "we thought it was dirty water," or his rolling-press used as a mangle for damp handkerchiefs, and himself called names because it cuts them. Yet these things, or worse, are what he shall surely experience unless he keeps his belongings carefully secured from the itching fingers of the uninitiated members of his household.

If the developing-room is not provided with double doors it is a a great convenience to have a light-tight cupboard; which can easily be made by letting in a partition between two shelves of the larger press, putting on a door, and pasting canary or some other non-actinic medium over the crevices. This will be found most handy if, for instance, one is called from the room during the development of a plate, or wishes to light his pipe or admit a companion (in the case of some men, especially hand-camerists, "accomplice" might be a better word). The writer has found it especially useful when exposing a number of lantern slides, as it saves the bother of repacking the box of plates during each exposure.

On principle, all chemicals should be kept in bottles, not in paper.

On principle again, every bottle should be labelled, not with a scrap of paper stuck on with gum, but with a printed label properly sized and varnished.

Old pyro bottles, with their wide necks, do well for keeping crystals in. Acids should be kept in glass-stoppered bottles.

Talking of stoppers reminds one of the difficulty many people have in neatly reducing the size of a cork to fit a particular bottle. A very easy way to do this is to cut it roughly to shape and then round and finish off on a large file. By the way, it has been truly said that there is nothing in the world absolutely useless, and these filings, if collected and boiled with fat, make one of the most effectual rat destroyers known. But to return to the dark-room—*en passant*, what a horrid misnomer this is, or ought to be—it should be remembered that hypo, being heavy, falls to the bottom of a solution, and therefore, to secure uniformity of strength, the bottle (to use a Scotticism) should be well stirred before use.

Now about storing negatives—an important question when one begins to count them by hundreds. A common method is to keep them in old plate-boxes, and this is as good a way as any if carried out properly; but to see a man (of course, ladies, with their tidy, methodical ways, need no advice on this subject) turning over box after box of good, bad, and indifferent negatives in the vain search after one, which, perhaps, in the end he finds to have been destroyed during a previous hunt, this is what ruins both plates and temper, and makes one inclined to say, in the words of Jeremiah, "Their everlasting confusion shall never be forgotten." Well, now, let us take a lesson from this and make out a list of all our negatives, divide them into dozens, and number boxes and list to correspond; then our methodical amateur can see at a glance in which box any particular subject is, and in this way economise much time, patience, and—alas! it must be mentioned—strong language, though the writer is of opinion that, if anyone can ever be excused the latter reprehensible practice, it is the untidy photographer in the many troubles and disappointments that must follow his careless and disorderly ways.

Reviews.

Horne's Guide to Whitby. Third Edition. Published by Horne and Son, 18, Bridge Street, Whitby. Price 1s.

Whitby, and its neighbouring coast, has long been a happy hunting-ground for the photographer, and has become closely associated with the name of Sutcliffe; no excuse therefore is needed for our welcoming and recommending to our readers this guide. It contains a vast amount of interesting general information, and to the photographer a rich harvest of picture suggestions. Its usefulness is enhanced by numerous illustrations, many of them from Sutcliffe's prints, and what will be more useful still, a map of the neighbourhood, showing not only the roads, but also the foot and bridle paths, obviously a great help to the photographic tourist.

* * *

Elementary Photography. By J. A. Hodges. (Hazell, Watson, and Viney.)—Singularly appropriate is the title that is given to this most informing handbook. The work is intended simply and solely for the beginner—the young student who has everything to learn and who finds himself in a quandary almost at every turn. For such a one this plain and straightforward treatise will undoubtedly prove most helpful and useful. It will solve his difficulties, remove his doubts, and increase step by step his knowledge. In a word, the work is essentially one that the beginner who regards photography as an art to be acquired more as a branch of knowledge than as a mere hobby may be well recommended to read and carefully study. The fact that it is issued from the office of the AMATEUR PHOTOGRAPHER is in itself a guarantee of the reliable nature of what the author has to say upon the subject he has made so peculiarly his own.—*City Press.*

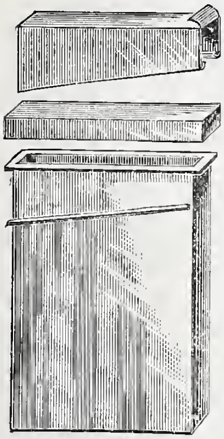
"**Photographic Scraps**" for the current month contains a lot of sound, digestible matter. "Technique" has a sensibly written article on "Pictorial Art," and numerous very valuable testimonials are published, one from Mr. Kerr, the official photographer to the Governor-General of Ceylon, who is noted for his racecourse work, and who speaks very highly of the Ilford special rapid plates for this work. Numerous other testimonials are included in favour of the P.O.P. and plates, but as we are, by special permission, reprinting a letter by W. K. Burton elsewhere, we must content ourselves with one other little extract:—"*Small Black Specks.*—One or two correspondents have been troubled with these, and it may be useful to explain their cause. *They are due absolutely and entirely to dirt particles in the washing water*, most usually metallic, iron rust from an old pipe, or sulphur from a worn-out rubber tube. In every case that has been submitted to us, where we have had an opportunity of testing the same sheet of paper ourselves, we have been able to produce prints quite free from the defect. These spots under the microscope have a comet-like appearance, showing where the particle of dirt has struck the film and formed a species of tail."

Apparatus.

A B C TONING POWDER.

T. Aston and Son, of 95, Spencer Street, Birmingham, have sent us a sample of the above, which is used by dissolving 1 drm. of hypo in $2\frac{1}{2}$ oz. of water, and adding 12 gr. of the powder; this is sufficient to tone six cabinet prints. From our trials it certainly will give very good tones. Price 1s.

"PRIMUS" AIR-TIGHT PLATE AND PAPER BOX.

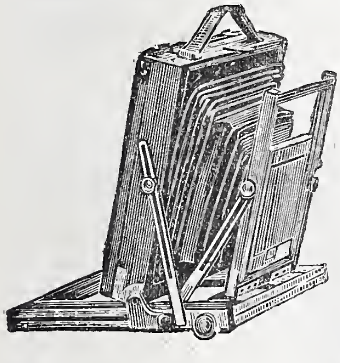


W. Butcher and Sons, of Blackheath, have sent us a sample of this simple contrivance, which will be found of very great use. It is a tin box japanned black, with a sheet of india-rubber which is laid on the top; the top of the box is turned over to form a flange and is slid on the inclined projections, and forms a perfectly light, air, and water tight joint. They will be specially useful for storing sensitised paper, and also may replace soldered cases for sending plates abroad. Prices 1s. 10d. for quarter-plates, 2s. 6d. for half-plates, and 3s. 6d. for whole-plates.

FITCH'S PHOTO-MECHANICAL FILM.

E. H. Fitch, of 34, Angell Road, Brixton, has sent us a sample of his new film, which is specially designed for photo-mechanical work. It is very thin and unusually transparent, and can be printed from on both sides, thus obviating the necessity of reversed negatives. The emulsion is clean working, of medium sensitiveness, and this new introduction will be found very useful for photo-mechanical work.

THE "UBIQUITOUS" CAMERA.



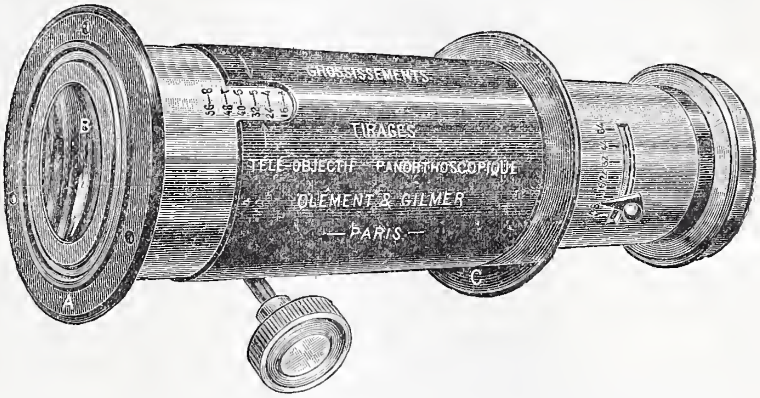
Messrs. Spiers and Pond, of Water Lane, Ludgate Hill, have shown us this new camera they have placed on the market. The half-plate size racks out to 16 in., and has swing and reversing back, rising and falling front, with an arrangement for sliding the back forward as shown in diagram, for short-focus lenses. The front of the camera slides into the two side uprights, the top bar being swung on one side for this purpose; and for closing the camera, the front is lifted out, the frame folds down, and the camera closes up very small, and is very light yet rigid. The dark slides have special rabbetted joints with hinged central partition, and are placed in the camera by bayonet joints and held in position by a spring. They are also very light.

The outfit of camera and three slides is exceptionally good value and good workmanship, and made of handsome, well-seasoned wood. Price £5.

THE "UBIQUITOUS" HAND-CAMERA.

This, also the introduction of the above firm, is one of the now general type of hand-cameras which may also be used on a stand. It is made for 5 by 4 plates, and has a range of from 5 to 10 in. focus, actuated by rack and pinion. It is made so that the dark slides of an ordinary camera, a Newman and Guardia changing-box, or Eastman roll-holder are all interchangeable. It is made of beech and covered with morocco, and is provided with ivory tablet for focussing index, screw bushes for stand, and the front is hinged with strap hinges which prevents any chance of snapping same. The price for the camera alone is £2, and ebonised dark slides price 10s. each, can be supplied with it, and any shutter may also be used. It is well made and good value for the money.

A NEW TELEPHOTO LENS.

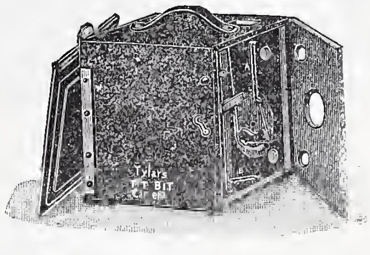


George Houghton and Sons, of 89, High Holborn, E.C., have submitted to us for notice one of these lenses which ought to be exceedingly useful. The front lens is a panorthoscopic rapid rectilinear fitted with Iris diaphragms, of 8 in. focus, and can be screwed into the flange A for ordinary work if desired. When screwed on to the flange C, the whole combination with the negative lens B will give enlarged images up to eight times, the extension of tube and camera being marked on the inner jacket. To magnify three times, the camera must be racked out $6\frac{1}{2}$ in., 6 times, 16 in., 8 times, 22 in. The lens is manufactured by Clement and Gilmer, late Laverne, of Paris, and, comprising as it does an R.R. and the telephoto lens in one, will be found decidedly reasonable at £5 5s.

Messrs. Houghton have also sent us some prints showing the enlargements obtained, and we hope at no distant date to present our readers with reproductions of specimens of work done with it.

TYLAR'S TIT-BITS CAMERA.

William Tylar, of High Street, Aston, Birmingham, has sent us one of these little cameras, which we have tried with very satisfactory results. It is very light and portable, and neatly covered with black leather, and is fitted with an achromatic single lens with two finders and a revolving shutter which is set and fired from the outside; one single metal dark slide is supplied with the camera, and extra slides may be obtained at 1s. 3d. each. Considering the price, 12s. 6d., it is decidedly a good thing. The front of the camera can be opened, and the lens taken out to be cleaned.



Societies' Notes.

"OPTIMUS" 100 GUINEA COMPETITION (last date for receiving prints December 31st, 1893). *Rules.*—Open to all amateurs and professionals: (1): Every prize-winner shall be required to make an affidavit that his negative has been produced by the aid of a lens bearing the trade-mark "Optimus" and name "Perken, Son and Rayment," engraved on the mount, within the given period, and shall produce the lens if called upon. All prints sent in to this competition shall become the property of Messrs. Perken, Son, and Rayment, and the negatives shall be loaned to Perken, Son, and Rayment for reproduction if they so desire. The negatives of the prize prints shall also become their property. (2) That every print must be from a negative produced since January 1st, 1893. (3) The artistic trimming of prints shall be allowed, but in all cases the full size of the negative must be stated on the face of mount and entry form. (4) Enlargements, or prints from enlarged negatives, will be admissible only as enlargements. (5) The entire work must be done solely by the competitor. (6) All prints shall be mounted, and bear on the face of the mount in the middle, half an inch below the base of the picture, a written or printed title, and on the back a *nom de plume*, (7) With each print must be enclosed an envelope bearing on the outside the *nom de plume*, and inside an entry form, duly filled up, bearing competitor's name and address. (8) All prints and entry forms must be received by December 31st, 1893, and must be marked outside "Optimus Competition." Not more than six prints to be sent to any one class. *Classes.*—(1) Landscape, with or without figure, Sub-class A, 8 by 5 and under. Landscape, with or without figure, Sub-class B, 8½ by 6½ and over. (2) Seascape and river scenery, Sub-class A, 8 by 5 and under. Seascape and river scenery, Sub-class B, 8½ by 6½ and over. (3) Figure studies (any size). (4) Portraiture (best set of six prints), any size. (5) Instantaneous and hand-camera work, Sub-class A, 8 by 5, and under. Instantaneous and hand-camera work, Sub-class B, 8½ by 6½, and over. (6) Architecture (interior and exterior). (7) Enlargements (amplified not less than three times linear). (8) Stereoscopic slides (best set of six transparencies). (9) Best set of six lantern slides. *Prizes.*—Class 1, sub-class A, apparatus to the value of £10; ditto, B, apparatus to the value of £10. Class 2, sub-class A, apparatus to the value of £10; ditto, B, apparatus to the value of £10. Class 3, apparatus to the value of £5. Class 4, apparatus to the value of £10. Class 5, sub-class A, apparatus to the value of £10; ditto, B, apparatus to the value of £10. Class 6, apparatus to the value of £10. Class 7, apparatus to the value of £10. Class 8, apparatus to the value of £5. Class 9, apparatus to the value of £5. Should the judges consider it advisable from the poor quality of the entries sent in to any one class to transfer the prize to another class, they shall be at liberty to do so. *Special Note.*—In making the awards special attention will be paid to definition and technical qualities, combined with artistic merit.

* * *

GOLDSMITHS' INSTITUTE (NEW CROSS) CAMERA CLUB.—On 25th ult. a meeting was held at the Institute, with Mr. J. S. Redmayne, B.A. (the Secretary of the Institute), in the chair, for the purpose of forming a Camera Club. Mr. J. W. Penfold, one of the governors of the Institute, was elected President. A good working committee was also elected, with Mr. J. H. Ridge as secretary. Club meetings will be held on the second and fourth Monday evenings in the month at 8 p.m. First meeting on June 12th. Subject, "Apparatus." Subscription 1s., entrance fee 1s. A good number of names were taken. Membership confined to members of Institute only. An excellent dark-room has been provided by the Governors for the use of members.

* * *

MR. ALBERT HAW, vice Mr. G. R. Wood, is now the Hon. Secretary of the South Shields Photographic Society, and his address is 115, South Frederick Street, South Shields.

* * *

THE OLDHAM PHOTOGRAPHIC SOCIETY have got up a very neat little three-fold fixture-card, the centre being occupied with a bromide print of the Council.

* * *

MR. GEO. KILBURN, Hon. Secretary, Dewsbury Am. Phot. Soc., has removed to 6, Ernest Street, Eastboro', Dewsbury. He requests us to call the attention of all dealers and manufacturers to the fact that by a recent resolution of the Post Office, redirected halfpenny packages are now charged for addressing, and he is therefore compelled to refuse them.

Societies' Meetings.

Bath.—On 24th ult. a special meeting took place to hear Mr. S. Herbert Fry, of London, lecture on the subject of "Multiple-Coated Films." Mr. G. F. Powell presided. The Chairman said that through the kindness of Messrs. R. W. Thomas and Co., and the lecturer, Mr. Fry, whose name was familiar to every photographer, they met to learn particulars regarding the new plates designated Multiple-Coated. The lecturer explained the character of the films from a technical point of view, and showed the advantages gained by the use of two or three, or possibly more, successive layers of a sensitive material on the same plate. He claimed that by a suitable arrangement of coatings of different sensitiveness a correct exposure would be obtained, no matter how the operator erred on the side of over-exposure. Again, more detail and brilliancy could be obtained in hand-cameras with such films than on the ordinary kind. Blurring, technically known as halation, a bugbear to the satisfactory rendering of interiors, was absent when the multiple coatings were employed. A very fine series of 15 by 12 prints were exhibited, all of difficult subjects, which bore out the claims set forth.

Durham.—On Whit Monday the first outing to Warkworth took place. A good number assembled, and after a pleasant journey and a substantial dinner at the Sun Hotel, operations were commenced. Varied views of the castle gave free scope for the camera, as also many choice bits along the banks of the Coquet; the Hermit's Cave, Amble, and a gipsy's encampment being visited. The party returned having had a most enjoyable outing with fine photographic weather.

East London.—General meeting held on 23rd ult., Mr. Wilkinson in the chair. The negatives of the pictures which had taken prizes at the Society's last exhibition were handed round, and formed the subject for a very interesting discussion. Mr. Uffendale showed how he had patched a hole in the film of his negative with a piece of film taken from another. Mr. Stone showed how a negative with pinholes in it could be made to give good results by judicious spotting. Mr. Wilkinson gave particulars of exposure and development by means of which he had carried off a prize. Mr. Pasco showed a negative which had been improved with a little retouching. The Secretary reminded members present that on Tuesday, the 13th of June, Mr. C. Tylee would give a demonstration upon the "Carbon Process."

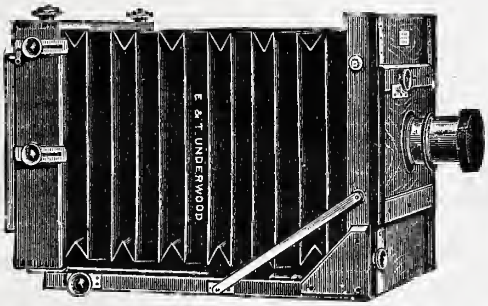
Hackney.—Ordinary meeting on 23rd ult., Mr. J. O. Grant in the chair. Mr. R. Beckett said he had enquired about polychromy, but doubts were expressed about it. Members' work shown by Messrs. Dean, Gosling, Roofe, Sodeau, and Wire. Mr. Grant showed an electric lamp which would work for eight hours, and can be used as an ordinary reading or dark-room light. Mr. R. Beckett showed a Swift's hand-camera lens (45s) anastigmatic, covering quarter-plate sharply to corners, 5½ in. focus, full aperture, *f*/8, with Iris diaphragm. Mr. Gosling showed his half-plate hand-camera, which, by adding a central division to, could be used for stereoscopic work. Mr. Hudson showed the Meteor. Mr. Sodeau showed one he had had constructed, capable of being used as an ordinary camera, and had all the movements; it was somewhat large. Mr. S. J. Beckett showed the camera he used when in Italy. He used a Thornton-Pickard shutter, had a focussing scale and double dark slides. The shutter draws right out, and by reversing when reinserting he could tell when plates had been exposed, as one side was plain and the other polished. Mr. Grant gave his experience of a Kodak, and Mr. Hudson objected to the use of india-rubber bands about shutters, and preferred pianoforte wire. Mr. Gosling thought Mr. Sodeau's camera too complicated. Mr. Hudson said he thought the weight could be reduced by substituting part of the box by use of bellows over a framework. After some further remarks, the members proceeded to summarise a hand-camera, and were of opinion that they should have the power of extending time of exposure to any length, being able to use different stops, and focussing on glass. The chairman said a beginner ought not to start with a hand-camera.

Kendal.—A meeting was held on the 17th ult, Mr. Frank Wilson in the chair. Arrangements were made for a field meeting to be held in June, Deepdale being the locality chosen. Mr. F. P. Heath read a paper on the "Cold Bath Platinotype Printing Process." in which he briefly and simply gave its history, and described its workings. He then gave a demonstration by developing some prints he had brought with him, in two different ways, one being the ordinary oxalate developer, which could be used for prints correctly exposed and from good negatives. The other way was by brushing the print over, first by pure glycerine then with glycerine mixed with the developer, so retarding the development and thus keeping an over-exposed or otherwise faulty print thoroughly under control, and bringing out the detail in a way that was impossible with the

E. & T. UNDERWOOD

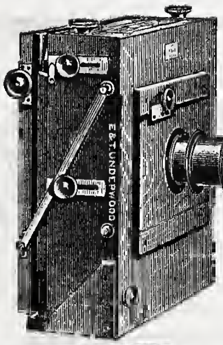
E. & T. Underwood

E. & T. Underwood



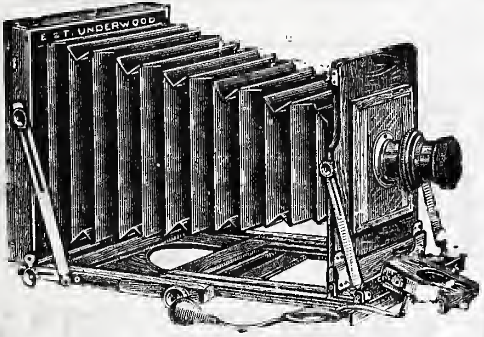
The "INSTANTO"
Complete Apparatus.

¼-plate ...	£2 4 6
½ " ...	4 4 0
1/1 " ...	6 6 0



The
"RECTILINEAR
INSTANTO."

¼-plate ...	£2 8 6
½ " ...	4 2 0
1/1 " ...	6 2 0



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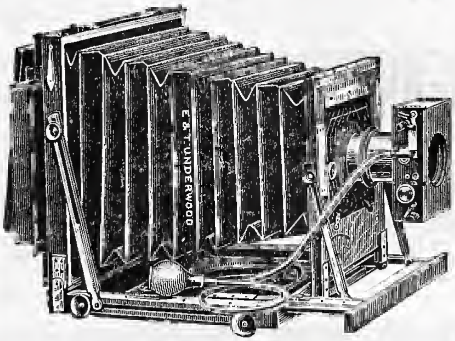
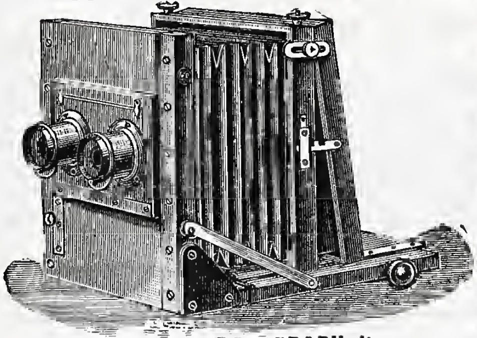


The "CLUB."
½-plate, £5 10s. 1/1 plate, £7 10s.



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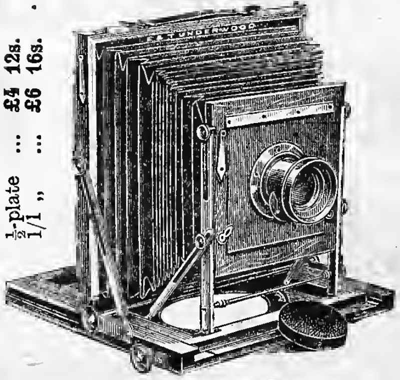
½-plate and Stereoscopic, complete, £6.



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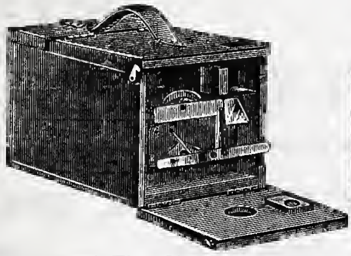
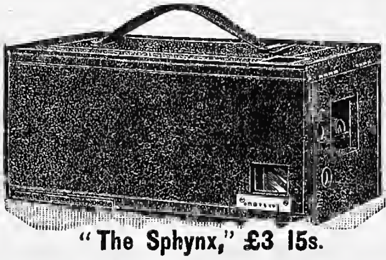
½-plate ...	£4 12s.
1/1 " ...	£6 16s.



"The City," 28s.



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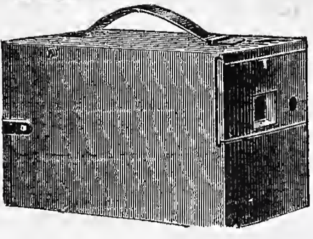

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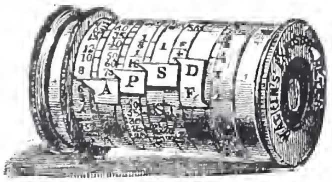

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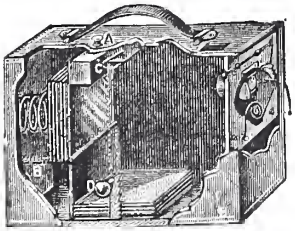

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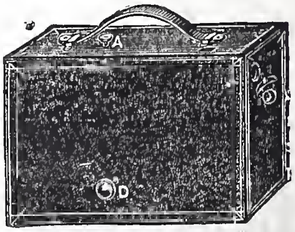

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ordinary bath. These specimens of Mr. Heath's work were afterwards passed round for inspection, and gave rise to some interesting discussions and useful information. Mr. Heath had also brought an album full of views printed by this process, and they were much admired, most people agreeing that they were wonderfully soft and pleasing, and made more satisfactory pictures as a whole than other printing processes.

Liverpool (A.P.A.).—On 24th ult. Mr. S. Herbert Fry gave a lecture on the "Sandell Plate." He explained the mode of making the triple and double layers of sensitive emulsion, also the great advantage in the latitude of exposure, which for ordinary purposes was equal to ten times that of the ordinary single film; also the great freedom from halation, and a special feature being their great superiority for interior work where great contrasts are experienced. On 25th inst. the ordinary monthly meeting was held, the President, Mr. A. J. Cleaver, in the chair. The following excursions were announced to take place:—Bebington, May 27th; Bolton Woods, June 10th; Windermere, June 17th; Ingleton, June 24th. Mr. L. E. Morgan (Fuerst Bros., London) gave a very interesting and practical demonstration on the new developer "Amidol," developing a negative, bromide paper, and a lantern-slide with excellent results; and he gave a very explicit account of the capabilities of this powerful agent. He also gave a short description and the uses of "Metol," and small samples were distributed among the members.

Liverpool (Camera Club).—Ordinary meeting on 24th ult., the President, Mr. J. Hawkins, in the chair. The subject for the evening was a lecture by Mr. Fry on the advantage of the multiple-film Sandell plate. Some fine specimens of prints were shown from negatives taken on these plates by Mr. Sandell, showing the inventor had given them a very severe test, especially in cases where halation would prevail. Several questions were put to the lecturer as to the development of these plates. Mr. Fry, in reply, pointed out it was advantageous to start with a tentative developer, getting density first, and then proceed to get detail, thereby obviating the veiling over of the top film and enabling you to watch the progress of development.

Rotherham.—On the 24th ult. the first excursion of the season took place, the destination being Ingleton, popularly known as the land of waterfalls. Special railway arrangements have been made, and the day proved favourable. The party, including several friends, numbered thirty-seven.

South London.—On 15th ult. the President, Mr. F. W. Edwards, in the chair, at the conclusion of the formal business, Mr. E. J. Wall delivered a lecture on "Isochromatic Photography." He said, although the principle of isochromatic photography had been known for some years it was not until Edwards introduced plates commercially that it received any attention in England. The sensitive salt used in the preparation of orthochromatic plates is stained with a dye, usually erythosin, one of the eosin series. A great many amateurs think they cannot use the plates without a screen. It is seldom required; improperly used, as bad a result can be obtained in the opposite way. In the spring and autumn when the grass and trees are more yellowish than in the summer, the value of colour-sensitive plates ought to be more appreciated. In the summer a great deal of white light is reflected from the foliage. Isochromatic plates show a great improvement in the renderings of distance, and finer detail in the shadows and water are obtained. In snow scenes a better gradation of the whites is given. By the use of too deep a screen the sense of distance is destroyed. In sunset scenes the superiority of the plates is strikingly apparent. No yellow screen is required, and comparatively shorter exposures given than when using ordinary plates. A screen would make the shadows blacker. For clouds and seascapes, isochromatic plates only should be used. For clouds, using a slow plate and stop *f*/16, an exposure of 1-4th to 1-20th of a second will be sufficient. Thunder clouds require 1-4th of a second, but for ordinary 1-10th of a second is enough. Cloud negatives should be kept rather thin. The new developers, Amidol or Metol, are preferable to pyro for cloud work. Amateur snow pictures are mostly unsatisfactory. By using a colour-sensitive plate of medium rapidity and a second tint screen, and giving a comparatively long exposure, carrying out the old principle of exposing for the shadows, and then in developing get a rather thin negative, better snow pictures will be got than before. Colour-sensitive plates are necessary in copying pictures. Sunlight is the best light to use for this purpose; next magnesium, and then gaslight; and lastly, diffused daylight. For ordinary work gaslight is more convenient than magnesium. The lecturer used two Defries lamps with the globes coloured with yellow varnish, and gave enormously long exposures. For pictures containing a good deal of red it was necessary to prepare plates specially for the purpose. Cyanin dye is the best sensitiser for red. To make plates that will keep, prepare your own cyanin. Oil-colour paintings require more exposure than water-colours, pastels less, and illuminated addresses still less. For home portraiture the most rapid plates should be used. The only case in portraiture in which a screen, and that a very pale one, should be used is to render very pale blue eyes. The faults of isochromatic plates are the great tendency to too great density, but this can be dealt with in development. Ammonia is more likely to yield fog, and for this reason pyro-soda has been recommended as a developer. *Pinholes:* These appear in greater numbers when ammonia is used as the accelerator than when soda or potash is substituted. Screens of various makes were shown, but, if desired, photographers can prepare their own by dissolving 1 gr. of brilliant aniline yellow in an ounce of amyl collodion *i e.* pyroxilin dissolved in amyl acetate, and coating thin glass with it. By using 2 gr. of the dye to the ounce a screen increasing exposure three times will be obtained. Microscopic cover-glasses are useful in preparing screens, and two of them can be fastened together. In the discussion which followed, Mr. H. E. Farmer recommended Amidol as a developer for colour-sensitive plates. May 22nd, excursion to Gomshall, Shere, and Albury. Twenty members were present, and a most enjoyable day was spent.

Tooting.—The new home situate over Mr. Mellhuish's establishment in the High Street was opened on the 25th ult. The meeting was well attended, and everything passed off in a satisfactory manner. Mr. Anderson, the President, in opening the meeting, offered a hearty welcome to the visitors, and expressed a hope that they might be able to interest them. He congratulated the club on its new home, and thanked the younger members for the very great trouble they had taken to get it in order. Messrs. Dollery and Irwin then took a flash-light photograph. The plates were developed for the benefit of visitors. A large collection of slides by Messrs. Simmonds, Beckett, and Anderson, and also a selection of Messrs. Wilson's, of Aberdeen, were exhibited by means of a limelight lantern operated by Mr. A. H. Anderson. Mr. Pirie, on behalf of the visitors, moved a vote of thanks, and the proceedings terminated. The following gentlemen have been elected members since last report:—Messrs. S. E. Lambert, J. Morgan, Mellikin, A. Kent, C. Trash, Marsh, Aldous, Coles, Hayne, F. C. Stowell, Young and Mayhew. Next meeting June 8th, Mr. Dollery "Cresco-Fylma."

West Kirby.—Favoured by lovely weather an excursion was made by waggonette to Burton on the 27th ult. This out-of-way little Cheshire village is at all times picturesque, but with the roses in full bloom on every side, most of the houses newly whitewashed, the sun shining, and the trees in full leaf, it could not have been seen to greater advantage. The church, the cottages, and the woods afforded plenty of scope for artistic work. Two slabs of stone, the date 1663, with certain initials, situated in one of the woodland paths, and known as the "Quaker's grave," makes a nice picture, and was not forgotten. Another view that looks well in a photograph is to be had, viz., the approach to the church by the stone pillars on the right hand as you come from the village. The pretty unobtrusive tit-bits are missed, and some return home laden with commonplace compositions. The next excursion is to Hilbro Island on the 17th June.

* * *

SOCIETIES' FIXTURES.

June 1—Aston.—"Experience of Gel. Chlor. Papers."
,, 1—Harringay.—Discussion Night.
,, 2—Holborn (Camera Club).—"Printing Processes, with Illustrations," by A. Horsley Hinton.
,, 2—Lewisham (Camera Club).—"Reduction and Intensification," by Mr. E. Eastwood.
,, 3—Bristol (Camera Soc.).—Excursion to Hanham.
,, 3—West Kent.—Excursion in and around Maidstone.
,, 3—Photographic Club.—Excursion to Rickmansworth.
,, 3—Manchester.—Ramble to Alderley.
,, 3—Rochdale.—Excursion to Alderley Edge.
,, 3—City of London College.—Excursion to Wanstead Park.
,, 3—Northamptonshire.—Excursion to Long Buckby.
,, 3—Oldham.—Excursion to Chew Valley.
,, 5—South London.—"Enlarging Hand-Camera Negatives," by Mr. A. R. Dresser.
,, 7—Photographic Club.—Plates *v.* Films.
,, 7—Manchester.—Ramble to Alton Towers.
,, 8—Dublin (Y.M.C.A.).—Exhibit of Prize Prints.
,, 9—Halifax.—Annual Meeting and Social Evening.
,, 9—Holborn (Camera Club).—Social Evening, an Evening with the Stereoscope.
,, 10—Huddersfield.—Ramble, Colne Bridge to Brighouse
,, 10—Bristol (Camera Soc.).—Excursion to St. Philip's Church.
,, 10—South London.—Excursion to Belvedere Park.
,, 10—Holborn (Camera Club).—Official Outing to Rickmansworth.
,, 10—West London.—Excursion to Greenwich.
,, 10—Rochester.—Excursion to Boxley.
,, 10—Manchester.—Ramble to Bolton Abbey.

To Correspondents.

All communications for these columns are to be addressed to The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.

RULES.

1. Write clearly and distinctly on one side of the paper only.

2. Write each Query or Answer on a separate sheet of paper.

3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.

4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.

5. The Editor does not undertake to answer Questions by post.

QUERIES.

6096 **Durham Cathedral.**—I shall be glad to have any information as to the experience of any of your readers here as to interior work, exposure, etc.—AMATEUR.

6097. **Ely, Lincoln, Peterborough.**—Will any reader give me information respecting these places, objects of interest to photograph, and the name of a good and cheap hotel in each place?—B.

6098. **Cromer and Sherringnam.**—Any information about the above, also if plates, etc., are obtainable there, will greatly oblige.—ENROBSIG.

6099. **Scarborough.**—What will be the best way of spending a day at Scarborough, arriving there about 9 a.m.? Is there a dark-room where I can change plates? Any information will greatly oblige.—G. B.

6100. **Ilfracombe.**—Any information will be most gratefully received as to best places to photograph, if nice scenery round about, if a fortnight can be spent, best hotels, etc., etc.—TRIX.

6101. **Grimsby and Cleethorpes.**—I am spending one day only at Grimsby, or Grimsby and Cleethorpes. Will any reader kindly say if there is anything worth photographing at either places; if so, what are the best subjects? Is there a dark-room where I can change plates? Any information will oblige.—G. B.

6102. **Colour Negatives.**—Can any reader tell me how to sensitise a negative to take a photograph of any subject all one colour, say all brown, or all red, or all green, or all yellow. I have a rose-tree out in full bloom, and I want to photograph it in one colour. What chemicals should I use, and how much should I use to sensitise one negative? I use the Ilford isochromatic medium plates.—IGNORAMUS.

ANSWERS.

6027. **Monmouth.**—See "A. P. Annual Holiday Guide."—EDITOR.

6029. **Reducing Prints.**—Gelatino-chloride prints may be reduced by a weak solution of cyanide of potassium or Howard Farmer's reducer.—EDITOR.

6030. **Alpha Paper.**—Sepia tones can be obtained on this paper by giving rather long exposure and using a weak developer of citrate of ammonia and oxalate of iron.—EDITOR.

6032. **Exposure.**—It is far preferable to use isochromatic plates, but with an ordinary plate and a dark picture in bright diffused light, it is almost impossible to over-expose. It must be a matter of experiment.—EDITOR.

6035. **Blind Shutter**—The best way would be to send the shutter to the Thorton-Pickard Co., but to do it one's-self means merely unscrewing and taking the shutter to pieces, cutting a piece of india-rubber cloth exactly the same size as the old and fastening in in the same way.—EDITOR.

6038. **Enamelling.**—Clean a plate of glass larger than print, wax it with a waxing solution, give a thick coating with enamel collodion, allow to set, immerse the print and glass in a warm 20 gr. solution of gelatine, bring into contact, squeegee, allow to dry, when dry cut round with sharp knife and strip.—EDITOR.

6040. **Monmouth.**—See "A. P. Annual Holiday Guide."—EDITOR.

6046. **Spots.**—These spots are probably due to silver stains caused by printing with damp paper or negative. They are very difficult to remove, and if the negative is valuable it is better to make a transparency, carefully retouch it, and make a second negative.—EDITOR.

6059. **Distilled Water.**—Cheap portable stills may be obtained from several photographic dealers, but it can be bought from 4d. to 6d. per gallon.—EDITOR

6066. **Lenses.**—The only difference between a rapid rectilinear and a rapid symmetrical is that in the latter the two combinations are symmetrical as regards shape, focus, etc., whereas the R.R. is not necessarily so. There is nothing to choose between them.—EDITOR.

6067. **Acids.**—Sulphuric acid has the formula H_2SO_4, and is used in photography in clearing baths and in the form of sulphates. Sulphurous acid has the formula H_2SO_3, and is used as a preservative for pyro either alone or combined with soda.—EDITOR.

6068. **Toning.**—It is always advisable to saturate a combined toning and fixing bath with chloride of silver before use. If properly made and used this bath will give any tone from reddish brown to purple.—EDITOR.

6071. **Enlarging.**—Illingworth and Co., Lindsay Hemery, Morgan and Kidd, or any other firm advertising in our pages would undertake this work.—EDITOR.

6072. **Printing.**—Difference in the colour of prints under the conditions named is probably due to the colour of the image; a somewhat similar instance will be found by printing through green glass.—EDITOR.

6073. **Ferrotypes.**—These are about three times slower than Ilford ordinary, I think, and therefore require proportionately longer exposure. A portrait lens would obviously give the shortest exposure. If correctly exposed there is no difficulty in getting excellent results.—EDITOR.

6076. **Grain for Photogravure.**—There are several methods of laying grains with liquids. One is by making a saturated solution of white resin in alcohol. Diluting this into three strengths, viz., 1 : 1 of alcohol 1 : 2 of alcohol, and 1 : 3 of alcohol. The more dilute the solution the finer the grain. The camphor formula is 5 per cent. solution of camphor in methylated chloroform and 5 per cent. solution of white resin in benzol, filter both solutions, mix, flow over plate, allow solvents to evaporate, heat till all smell of camphor is driven off and the resin just begins to smell. The spirit solutions should be applied with spray diffuser.—EDITOR.

6077 **Insufficient Density.**—Over-exposure is probably the cause of the trouble. Increase the pyro and bromide and reduce the ammonia.—EDITOR.

6078. **Repairing Shutter.**—Marion and Co. would quote for this at once.—EDITOR.

6079. **Iona and Staffa.**—At Iona are an old church, a fine old moss-covered cross, and some interesting tomb stones near it, a fine row of old tombstones. Accommodation can be had at the village (the Bigtown). At Staffa is the grand Basalt Cliff and Fingall's Cave. The Oban steamers stay just long enough to see these, but barely long enough for photography. There is no accommodation for tourists on the island. Probably the best plan to get time there is to take the steamer from Oban which goes first to Staffa, then go on to Iona, and the next day take the steamer which first goes to Iona and then on to Staffa. The advantage will be to have two chances at Staffa, but you will miss the fine cliff scenery between Iona and Oban.—CHAS. PUMPHREY.

6081. **Printing from Reversed Negatives.**—This query is unintelligible. A reversed negative can be printed from exactly the same as an ordinary negative. EDITOR.

6082. **Breaking Wave.**—Probably 1-50th of a second, but far more artistic results would be obtained with 1-20th sec.—EDITOR.

6084. **Exeter Cathedral and Neighbourhood.**—See "A. P. Annual Holiday Guide."—EDITOR.

6087. **Killarney.**—There are no private lodgings (such as you get at Blackpool or Douglas) to be had at Killarney, but there are some good hotels. I should recommend "Amateur" to go to Muckross, which is two Irish miles from Killarney; he will find there two good hotels, Ross's Muckross Hotel and O'Sullivan's Hotel. O'Sullivan's, where I stayed at last August, is clean, comfortable, and reasonable. These two hotels are opposite the gates of the Muckross Estate and only two minutes' walk from the shores of the lakes, and the visitors staying at either of these hotels have the privilege of free admission to Muckross Abbey and Estate, whereas visitors at the other hotels in the district have to pay 1s. admission, and as all the lakes and scenery are on this and the adjoining Kenmare Estate, "Amateur" will see the advantage of staying at Muckross. If he will write to me I shall be pleased to give him fuller information, which will be of use to him. Address with Editor.—J. W. ANDREW.

6090. **Enlarging.**—I made a box—as described in this journal some months ago—for enlarging, using lens out of hand camera (quarter-plate), and use six to eight pieces of magnesium ribbon behind ground-glass to enlarge up to whole-plate; any larger size is only a question of calculation (of area). My lens is 5½ focus and I used Eastman bromide paper.—BOX ENLARGEMENT.

6092. **Labels.**—These can be had of Adams, Charing Cross Road and Aldersgate Street (I believe in four languages) at 3d. per doz. gummed sheets, or 4d. by post.—A. W. JAMES.

QUERIES UNANSWERED.

May 5.—Nos 6065, 6066, 6067, 6068.
,, 12.—Nos. 6071, 6072, 6073, 6075, 6076.
,, 19.—Nos. 6077, 6078, 6081, 6082, 6084, 6085, 6086.
,, 26.—Nos. 6088, 6089, 6091, 6093, 6094, 6095.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

M. H.—(1) The theoretical equivalents are sodium sulphite 1, potassium metabisulphite 0·95; but this can only apply to fresh made metabisulphite, for the longer it is kept the more acid it becomes. You did not take into consideration the difference of developing agent. We should say that metabisulphite of the same weight as metol would be more nearly right. All you can do now is to increase your potash carbonate. (2) You do not state what washers you have, but obviously if you allow the water to flow in at the bottom, the prints must move. Perhaps you are washing too many at once. Write and let us know what washers you are using.

ALPHA.—The coloration of the toning bath is unavoidable; nor do we believe that it may be used indefinitely, although some say so. It is just as well to keep the old bath and add one-fourth of it to the new bath, and finer tones will generally be obtained in this way. Always keep your bath in the dark, and add a little soda after toning.

A SUBSCRIBER.—The bicarbonate bath is—

Bicarbonate of soda	90 gr.
Chloride of gold	4 ,,
Water	6 to 8 oz.

The stronger the bath the quicker it tones. Wash the prints well first before toning. No need to use alum bath. It will keep for some time, but not indefinitely, and the old bath can always be used instead of water to make up the new bath.

W. E. A.—Both prints show careful work, and we should think both would be best suited for the rough paper. The pink tinge you complain of is due to the borax. Try the ordinary acetate or phosphate bath, and do not expose the paper to a strong light whilst toning.

C. PELLEW.—A black velvet background would show the model up best, and if the metal is polished you will have to enclose the model in a framework of tissue paper so as to soften down the light and get rid of reflections, which will be your greatest trouble. A rapid plate with fairly long exposure, and one of the newer developers, amidol for instance, we should think would give you the best result. Beyond the reflections there is no difficulty. You will have to stop down a great deal, of course, for if any size it will be difficult to get it all in focus, but if you cannot get on we would call and give you a little help.

G.—We have never used the backs you mention, but speaking from the experience of a friend, they are perfectly satisfactory. Nor can we imagine any other objection beyond conservatism and price.

EDGAR.—Make up a silver bath by dissolving 60 gr. of nitrate of silver in an ounce of distilled water. Make up sufficient solution to cover a flat-bottomed dish to the depth of ½ in. Make also a strong solution 120 gr. to the ounce. Take a sheet of paper by both hands, and bring the hands together, forming a loop of paper; allow the bottom of loop to touch the surface of the bath, and gradually lower the two ends; allow to float for one minute, raise, and break all air bubbles with a quill or spill of paper; float for two minutes, then raise one end of the paper and draw over the edge of the bath to remove superfluous solution, and hang up to dry by wooden clips. As soon as surface dry, float the back of the paper on a solution of citric acid, 30 gr. to the ounce, for one minute, dry and keep under pressure between sheets of blotting paper soaked in a solution of carbonate of soda. After sensitising every sheet, add 2 drachms of your strong 120 gr. solution to bath. After sensitising for the day add a little bicarbonate of soda to bath till a permanent but slight precipitate is formed, then bottle and expose to daylight if dark coloured.

J. LAWRENCE.—Almost any dealer would get the fittings for you. Why not try Geo. Mason and Co., or Park, 5. Station Buildings, Acton St., Kingsland, London, N.? and Platt and Witte, Birkbeck Road, Kingsland, N., would supply. Either a Wray, Crouch, Taylor, or Swift's detective lens would be the best lens to get.

WALTER DE H. BIRCH.—Many thanks for back numbers, which are always useful.

CASA.—Of course, a great deal, as you say, depends on "cheek," and whether the hand-camera worker could keep his head sufficiently long at the transcendent beauty of the subject to fire his shutter. Such things have been done, of course, but it requires, so it is said, a cool head. We have no personal experience, and cannot therefore speak with authority. Before snapping at a young lady it is customary in other fields to ask someone's consent.

ANCIENT MARINER.—If you refer to the competition details in this number, you will see how to answer th questions.

IVERNA.—We should certainly prefer B. These, we know, can be relied on.

HENRY A. CLEAR.—As a toned print would consist of a very minute quantity of gold, which is more permanent than silver, the toned print ought to be considered the more permanent, but we should say your untoned print was practically quite as permanent as a toned one.

TAKEN IN.—Before we take any steps in the matter we must have your full name and address as a guarantee of good faith.

J. F. M.—(1) Use full aperture or *f*/11. Use the shutter at the very highest speed. Stick to the plates you name, but use them with Amidol—

Amidol	4½ gr.
Sodium sulphite	45 ,,
Distilled water	1 oz.

You will get better results with this than with pyro.

C. E. F.—Letter by post.

TRIX.—(1) The sulphocyanide bath is the best, we think, but we prefer to use the potash salt instead of the ammonia, and to add thirty grains of bicarbonate of soda to the gold solution before adding to the sulphocyanide. The bath should be quite clear when mixed. You have got something wrong somewhere, if it is not. The gold must be diluted with water and added to the sulpho in solution. You might try the bicarbonate bath; this gives warm purple tones very easily.

Bicarbonate of soda	90 gr.
Chloride of gold	4 ,,
Distilled water	12 oz.

Wash your prints thoroughly before toning. (2) We should prefer the medium isochromatic, and to pack them should merely dust the films carefully, and pack face to face without tissue paper, or you can get small separating cardboards from Wheeler, of Manchester. If the plates are packed face to face without anything between, wrap in ruby paper, and pack in box, so that they will not shake. (3) Half a guinea is the price, we think, but not quite sure. Have just ordered new one for own use, and will let you know if you write again.

AMATEUR.—Percy Lund and Co, Memorial Hall, Farringdon Street, E.C., will supply both your wants.

W. H. REYNOLDS.—You ought to think yourself lucky to show such results after a week's practice of photography. In future always number your prints when sending for criticism. You do not carry development far enough. When using hydroquinone the image must be apparently much denser than with other developers. We should advise you to abandon its use, and try Metol, which is easier to work, considering the results. At the same time, one or two of your prints are certainly spoilt by being printed in too strong a light; was it sunshine? (1) Over-printed, or negative wants intensifying. (2) Over-toned. (3) What a pity to have cut the dog out, over-printed and over-toned. (4) Your vignetting is not successful, over-printed and over-toned. To vignette obtain some stout sheet lead about the same thickness as is used for lining tea-chests, cut a small hole in it about the size of the head of the sitter, and then snip round the hole with a pair of scissors, so as to serrate the edges, then turn these up, and nail the whole on the front of the printing-frame. Your vignetting shape is too close to the negative now, and do not use round apertures, but shape them to the figure, somewhat narrow at the top, and wider for shoulders. (5) Insufficiently toned, and shows signs of having been exposed to too strong a light. A cold tone is a greyish or blueish purple like 1 and 2, whereas a warm tone is a rich brownish purple, something between four and five.

W. H. PEARSALL.—Considering that you have a very good R.R. of 8½ in. focus, and one of the combinations can be used as a single lens of double the focus, and therefore giving you objects double the size, we do not see why you need get another lens, but we answer your queries. (A) 12 in. is the best. (B) Yes, because only the centre of the field is used with a larger lens. (C) One is a first-class English lens, the other a cheap French one. (D) We have used a D with satisfactory results for years. (E) No, unless you get a telephoto lens (see p. 372). (F) H. M. Appleyard, 1, Alford Villas, Barmouth, has dark-room.

EXCELSIOR.—Please read our advertisement pages. Morgan and Kidd, Done and Co., Hemery, Illingworth, and many others advertise for enlarging. Prices vary, but about 2s. 6d. for one 12 by 10 print is an average price. If you want enlarged negative the price is about 7s. 6d. for 12 by 10.

R. V. NEWTON.—Neutralise your gold by adding bicarbonate of soda 30 gr. to bath, wash your prints thoroughly before toning, and tone till on looking through them all the reddish colour has disappeared except in the very heaviest shadows. You do not carry toning far enough. Add ½ oz. of bicarbonate of soda to every pint of fixing bath also.

GEO. BEVAN.—Plate under-exposed and the lighting on right-hand side of sitter's face far too strong. You have evidently got two windows, or else a door, one on each side; in such a case you must subdue the light from one, or else you get a cross light, as in print sent. Hang a sheet or thin curtain over the light on that side. You can use Mason's bath if you like. We should recommend the bicarbonate. See answer to Trix in this column. You certainly must not put prints into bath without washing, nor use alum immediately after fixing, as you suggest. We hope to shortly commence a series of articles on Home Portraiture on the lines you suggest.

G. H. EVANS.—The marks in Nos. 1 and 3 are certainly due to light somehow, but No. 2 looks very much like a drying mark, which might be caused either in drying the plates or in drying the negative. Further than this we cannot state without seeing the negatives. Such marks as those in 1 and 3 could be caused by the negatives not being covered with water all over; the part exposed to the air would turn slightly yellow. It would not be a difficult matter to set these defects right, and we would propose using ordinary negative varnish with some aurantia or any spirit, soluble yellow aniline dye dissolved in it, and coating the back of the negative, and then scraping off when dry up to the line, or a little stump and blacklead on papier minéral pasted on the back would give the same effect. You will find that bluish black tones can be obtained far easier with the bicarbonate bath suggested above to Trix than with the bath you name. The solution should not turn yellow, and if it does it shows that some pernicious matter has been introduced into bath by print, and certainly yellowness of whites would be caused. Are the holes in the negatives caused by washing, or are they pinholes? Provided the inside of your tank is not corroded anywhere it may be relied on for effectually and safely doing its work, but if the enamel has gone in any place it will cause the holes you complain of, and the remedy is to dry the tank thoroughly, sand paper down the bare patches, give the whole three coats of Aspinall's bath enamel, and dry in the sun.

REKLAW.—(1) Fallowfield, 146, Charing Cross Road, will supply you with the ready-sensitised ferrotype plates. (2) Black varnish, to be had from most photographic dealers.

H. A. SALWEY.—Mix the combined bath as follows: Water, hypo, sulpho, acetate, gold. Add the gold after all the other ingredients are dissolved, neutralising the gold first. In the bath you have already mixed add about 60 gr. of bicarbonate of soda to A. One of the best combined baths is—

Potassium sulphocyanide	100 gr.
Hyposulphite of soda	960 ,,
Tungstate of soda	60 ,,
Distilled water	10 oz.

Dissolve and add gradually, shaking between each addition—

Chloride of gold	6 gr.
Bicarbonate of soda	30 ,,
Distilled water	2 oz.

Well wash your prints before toning.

FRANK GRAY.—W. F. Slater, 169, Southampton Street, Camberwell, London, S.E., would supply frames and mouldings. There is no list of copyright prints.

M. F. W.—Provided you did not put the plate quite close to lantern, your medium would be quite safe, but two thicknesses would be absolutely safe. Cover one side with two thicknesses and put this next the plate whilst developing, and use the other sides for examining.

AMATEUR.—The exposure with good light would be about twenty seconds. Ferrous oxalate is the best. We do not know the vignette you name. We cannot possibly tell you what exposure to always give to Ilford plates, as we do not know what subjects, light, etc., you may work under. Both negatives are rather thin or else prints over-printed, both want clouds, and the horrible stains are caused by impurities in one of your baths.

C. D.—(1) Gives one the feeling of tower leaning away from one due to camera being tilted up, and swing-back not used, slightly over-printed. (2) Good. (3) Printed far too deep. (4) Fair. (5) Ditto, though too black in tone to be pleasing. (6) Over-printed. (7) Ditto. (8) Under-exposed and over-printed. (9) Over-printed. (10) Ditto. (11) Fair, but not good artistically. (12) Wants clouds and foreground, uninteresting. (13) Over-printed, and not artistic. (14) Wants clouds, and overtoned. (15) Over-printed, and wants clouds, or sky cutting down. (16) Over-printed. (17) Over-printed. (18) Ditto, flat, something might be made of this by careful printing. (19) Over-printed, and not artistic. (20) Ditto. (21) Better, but still flat, and we should say over-exposed. (22) The best of the bunch, but just wants a bit of cloud. (23) Good, but not artistic. (24) Good, far better than the silver print of the subject.

A REGULAR READER.—We have placed your letter before the writer of the article, and he says when he was there only a short time ago there were no building operations going on. We cannot, of course, guarantee to visit every place suggested, to see whether the information is up to date, and can only regret you should have been mislead.

A. M. ASHWIN.—The metal coming in contact with the prints is quite sufficient to cause the grey patches in your prints, especially if, as most likely, it was copper or brass. (1) Negative wants intensifying, and print over-toned. (2) Technically allright, but a little too evident, posing to be pleasing artistically. (3) Under-printed and over-toned, we should be inclined to print this in rather a strong light, so as to soften down the very white blouses which are obtrusively wanting in detail.

F. T. CARTER.—We should choose No. 1 without any hesitation.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence****, Every additional* ***three words, one penny****. The name and address of the sender* ***must be paid for****. (A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one word****; compound words count as* ***two words****.)*

DEPOSITS.—*Money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge* 1s.

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

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CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of* 3d. *to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR, AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.****, or a commission of* ***2½ per cent.****, upon the sale price of the apparatus.*

Bicycles, etc.—High-class pneumatic safety, ball bearings and ball pedals, warranted absolutely faultless and a perfect mount, bought this year, accept £7 15s.; approval willingly; exceptional offer, cannot fail to please.—Cyclist, 27, Tower Street, Ipswich.

Cameras, Lenses, etc.—Mason's half-plate camera, three slides, R.R. lens, bag, etc., equal to new, £4 10s.—Francke, St. Saviour's Road, Jersey.

For sale, quarter-plate camera (Rayment's Optimus) and three double dark slides, all of Zebra mahogany and built specially for the Glasgow Exhibition, double extension and every movement, a splendid instrument, condition as new, price £5; also following lenses in perfect condition at a considerable reduction: Beck 7in., Ross 5in., Optimus 3in., French 9in. rectilinears.—Apply, Francis Bell, College Office, Trinity College, Cambridge.

What offers? Underwood's half-plate single lens and Instantolux shutter, and Lancaster Multum-in-Parvo whole-plate enlarging camera.—Thirkell, 7, Milton Terrace, Surrey Square, S.E.

Hand-cameras, etc.—50s. Talmer for 40s., quite new.—J., 28, Rosaline Road, Fulham.

Quarter-plate Shuttle hand-camera, Houghton and Son's, as new, morocco leather, rotating stops, 12 plates, cost £7 15s., price £4 10s.; hand-camera, complete, with finder, new, 17s. 6d.; half-plate orthochromatic lens, Newton and Co., stops, complete, 20s.; full-plate camera with patent legs, in case, complete, £2 10s.—McGowan, Rylv's Gardens, Liverpool.

Lancaster's Omnigraph hand-camera, new last month, complete, 15s.—W. B., 21, Royal Street, Lambeth, S.E.

City hand-camera, holding 12 quarter-plates, with lens, revolving shutter, finder, level, £1 1s.—Knottesford, Fortescue, Bedford.

3 Junior Kodak, about 20 unexposed films, equal new, £5 15s. lowest.—Bygrave, 13, Canterbury Road, Brixton, S.W.

Adams' Ideal hand-camera, fitted Wray lens, new January, cost £8 10s., sell £6 10s.; approval.—A. D., 25, Carter Lane, E.C.

Kodak, No. 5, folding, 54 exposures, picture 5in. by 7in., excellent condition, cost price £13 7s. 6d., also the L. S. Co.'s Cyclists' tripod, cost £1 1s., will accept £10 for lot.—Ross, Lynton, St. John's, Woking

No. 2 Kodak (time and instantaneous) excellent R.R. lens, good as new, cost £7, price £3 10s.—E., 18, Rodney Street, Liverpool.

Frena hand-camera, nearly new, perfect, 82s. 6d. deposit.—Bensley, 20, Oxendon Street, S.W.

Swinden and Earp's patent hand-camera, quarter-plates, excellent condition, perfect, 75s.; deposit.—Bensley, 20, Oxendon Street, S.W.

Lenses, etc.—Carte-de-visite lens (Voightlander's 15s.—111, Shakespeare Road, Herne Hill, S.E

Very fine 7 by 5 rapid rectilinear lens, iris diaphragms, grand definition, 8in. focus, as new, approval, deposit, 28s. Address, Iris, 121, Shirland Road, London, W.

Lens, splendid half-plate rapid rectilinear, first-class definition. bargain, 22s.—Address, W. E., Sims' Library, Willesden Green, N.W.

Nearly new quarter R.R., good definition, Waterhouse diaphragms, 18s. 6d. ; approval.—X., 30, Victor Terrace, College Park, W.

Ross' portable symmetrical, No 4, 6in. focus, a beauty, £2 16s.—Gunston, 14, Westmorland Terrace, Bath.

Splendid whole-plate R.R., iris diaphragms, exquisite definition, faultless, 36s.. guaranteed.—Photo, 10, High Street, Harlesden, N.W.

Half-plate Lancaster's Instanto lens and shutter, Iris, new and faultless, 21s., bargain.—B., 99, Vernon Street, Darwen.

Ross' 7in. portable symmetrical, perfect, £3 12s.; deposit —A. Huddart' Eskdale, Carnforth.

Wray's 10 by 8 wide-angle landscape, iris diaphragm, as new, £3.—N. Abbotsfield, Mannamead, Plymouth.

Dallmeyer's 1B c-d.-v. lens, Waterhouse stops, cost 6 guineas, take 50s., or exchange landscape lens (narrow angle) by eminent maker, or hand-camera.—Pearsall, Headmaster, Enville Street Board School, Stourbridge.

Microscope.—Microscope, small, powerful, nearly new, 13s., or exchange hand-camera.—H. Reeves, 3, Sackville Street, Reading.

Rollholder,—Eastman half-plate rollholder, only used few times, good as new, £2.—L. R. Holmwood, Walton Park, Clevedon.

Sets. —Rayment's patent (long-focus) camera, quarter-plate, 5 by 4 Wray's rapid rectilinear lens, six double dark slides, Grimston's shutter, good folding tripod, good as new, price £6, cost double. With this set I obtained my fine series of South African views.—Rev. Riddette, Haydock, St. Helens.

Watson's Acme 8½ by 6½ outfit, superb instrument, as new.—H., 7, Crescent, Taunton.

Lancaster's quarter Instantograph camera, lens, shutter, stand, three double slides, waterproof case, perfect condition, 45s.—J. C. Gisborne, Alexandra Park, Nottingham.

Half-plate Rayment camera, parallel bellows, extending 18in , all movements, three double backs, mahogany telescopic stand, cost over £8, good as new, £4 15s.—Rev. J. O. Gooch, Redhill, Surrey.

Quarter-plate camera, lens, double dark slide, tripod stand, 18s , bargain.—John Paterson, jun., 39, Victoria Street, Rothesay.

Shew's half-plate Eclipse, not used, swing-back extension, Eclipse lens and shutter, for tripod or hand, cost £10 18s., sell £9 18s., three slides.—No. 407, office of this paper, 1, Creed Lane, Ludgate Hill.

Rouch's half-plate patent portable camera and three double backs, fine R.R. lens, folding tripod, and camera case, all in first-class condition, £5, cheap.—G. E. Franklin, Rickmansworth.

Quarter-plate brass-bound Lancaster camera, four double backs, rapid rectilinear lens, mahogany stand, leather bound case, cloth, etc , splendid condition, 60s.—F. Cole, 184, Queen's Road, Dalston, N.E.

Whole plate camera (Lancaster's 1890 Instantograph), two dark slides, lens (iris diaphragm), and shutter, superior three-fold ash stand, perfect condition, £5 10s. (cost £7 10s.)—H. J. Adams, 57, Haymarket, S.W.

Sets. Camera, Scott's whole-plate, tripod, one Ross's No. 5 portable symmetrical lens, also one Ross's whole-plate R.R. lens, three double backs, all in case. Kershaw's instantaneous shutter, all developing and printing necessaries complete, except chemicals ; also Marion's Academy camera, all in perfect working order ; deposit. What offers?—Henry C. Hadden, Aberdeen.

Half-plate Thornton-Pickard camera, revolving back and front, every movement, three double backs, tripod, two cases, good as new, cost £13, price £8 8s.—Herbert, 101, Goldhawk Road, Shepherd's Bush, W.

Whole plate camera, Rayment's long extension, three double dark slides, and two carriers each, half and quarter plate, one extra sliding front, two tripod stands and heads, one Sands and Hunter's 8½ by 6½ R.R. lens, and one S. and H. 8½ by 6½ wide-angle R.R. lens, one Sargeant's instantaneous shutter, one view-finder and focussing glass, all complete in leather case, lock and key, shoulder strap, £12.—J. B. Clark, The Woodbines, Langley Road, Watford, Herts.

Quarter-plate Instantograph, three double slides, Instantograph lens (splendid definition), shutter, tripod, bag, cloth, three dishes, cost 3 guineas, take 2 guineas. Exchange for half-plate, give cash.—Renfree, 6, Eve Road, Leytonstone.

Shutters.—Quarter and half plate instantaneous shutters, 4s. 6d. each.—50, Upper Berkeley Street.

Stereos. Apparatus.—Stereoscopic hand-camera with pair of R.R. lenses, takes 12 plates, bag-changing, good shutter, splendid condition, 37s. 6d. ; quarter-plate do., 25s. ; light folding stand. suit either, or quarter-plate camera, 5s. post free.—G. E. Franklin, Rickmansworth.

Sundries.—For sale cheap, several lenses, cameras, and various photographic appliances ; list sent, or may be seen by appointment at Mr. Penfold's, Auctioneer, 54, High Road, Upper Tooting, Surrey.

Ruby candle lamp by Benham and Froud (cost guinea), 10s. ; Tylar's lanternscope, 9s. — T., 9, Ospringe Road, N.W.

"British Journal Photography," 1890, '91, '92, 5s. volumes ; "Photographic Review of Reviews," vol. 1, 13 numbers, with index, 4s. 6d. ; all clean and perfect. —3. Walpole Street, Wolverhampton.

Four-fold tripod, washing trough for negatives, dark-room lamp, draining racks, and other sundries. What offers?—Pratt, East Bridgford, Notts.

Three half slides, two carriers, 25s. ; revolving oil lamp, "Herbert," 6s. ; folding stand, 5s. ; exchange quarter slides.—90, Selborne Street, Liverpool.

Tripod —Walking-stick stand, 7s. 6d. (quarter cost). —H. Cheshire, 9, Great Tower Street. E.C.

Talmer hand-camera, good lens, finder, carries 12 quarter-plates, changing bag, etc., very best condition, 35s. ; Lancaster's quarter-plate International camera, back extension, leather bellows, cross movement, with three double dark slides, 35s. ; Lancaster's half-plate wide-angle lens, rotating stops, 10s. 6d. ; two-fold rule-joint ash tripod, very rigid, as new, 12s. ; three dozen Wratten's ordinary quarter-plates, cost 1s. 9d., 8s. lot. On view, City Sale and Exchange Rooms, 54, Lime Street, Leadenhall Street, City.

WANTED.

Cameras, Lenses, etc.—Wanted, Tourist's whole-plate camera of lightest pattern, by first-class maker ; whole-plate casket lenses, and pair 4in. rapid rectilinears, by Wray or Dallmeyer, also Morgan and Kidd's roller slide. whole-plate or 10 by 8.—No. 408, office of this paper, 1, Creed Lane, Ludgate Hill.

Hand-cameras, etc.—Wanted, Frena hand-camera, state price.—M. Butler, 5, N. Common Road, Ealing, W.

Lenses, etc.—Wanted, 5 by 4 R.R. by first-class maker ; approval.—A Huddart, Eskdale, Carnforth.

Wanted, good whole-plate R R. lens for shutter work ; approval ; deposit.—No. 406, office of this paper, 1, Creed Lane, Ludgate Hill.

Wanted, pair 5 by 4 R R. stereoscopic lenses, 5½ focus, iris diaphragms, good maker, and shutter for same, also Brin's oxygen cylinder, 10 or 15 ft., cheap. —Jones. 12, Archer Street, Notting Hill, W.

Prints.—Wanted. prints of ships or marine subjects ; state size and price each.—No. 409, office of this paper, 1, Creed Lane, Ludgate Hill.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bijou Enlarging Lantern.—Patent rectangular or square condensers used by Van der Weyde and other eminent photographers, reduces size nearly half ; portable, unique, scientifically constructed, beautifully made, and optically correct.

Bijou Enlarging Lantern is the only perfect enlarger, high-class lenses and workmanship.

Bijou Enlarging Lantern, new design, takes negatives all sizes, gives uniform illumination. Every amateur and photographer should possess one. Gives universal satisfaction. Enthusiastic testimony everywhere. Prices with or without objectives sent on application. Cheapest and best. Hughes, Brewster House, Mortimer Road, Kingsland, London, N. Before purchasing any lantern get our grandly illustrated Catalogue, a surprise when seen ; over 180 choice wood-blocks of the finest and cheapest instruments extant, 6d., postage 3d.

Bargains in Cameras and Sets.—Underwood's whole-plate Exhibition camera, double extension, leather bellows, rising and cross front, wide-angle movement, fitted two double dark slides with carriers, Underwood's R.R. lens, iris stops, instantaneous shutter, finder, turntable, four-fold stand, and waterproof canvas case, £8 5s. ; Lancaster's whole-plate brass-bound Instantograph, wide-angle movement, all latest improvements, leather bellows, etc., fitted Lancaster lens, iris stops, instantaneous shutter, two double brass-bound slides, carriers and folding stand, finest condition, £6 17s. 6d. ; Underwood's whole-plate Field camera, double extension, leather bellows, rising front, reversing and swing back, wide-angle movement, width when closed 2 in., fitted very fine rapid rectilinear lens, iris stops, double book-form slide, folding stand, and canvas case, £7 5s. ; half-plate Spanish mahogany camera by Mallett, double extension, rising front, swing and reversing back, three double book form slides. fitted rapid rectilinear lens by Laverne, Waterhouse stops, two-fold stand and case, real bargain ; half-plate Spanish mahogany camera by Middlemiss, double extension, best leather bellows, rising and cross front, reversing and swing back, front and back extension for wide-angle pictures, fitted three double slides, Leviathan rapid rectilinear lens, iris stops, works $f/8$, three-fold sliding tripod and case, as new, £6 5s., worth double ; half-plate Optimus rapidograph camera, double extension, best leather bellows, reversing and swing back, rising and falling front, fitted three best double book-form slides, metal divisions, clips and catches, Laverne's best aluminium rapid rectilinear lens, iris stops, works $f/8$, three-fold ash tripod and case, warranted as new, £7 17s. 6d. ; Lancaster's quarter-plate aluminium instantograph, double extension leather bellows, swing and reversing back, Lancaster's aluminium lens, iris stops, see-saw shutter, two double dark slides, folding stand and case, as new, £2 15s. ; quarter-plate Spanish mahogany by Lawley, square leather bellows, double extension, rising and cross front, swing and reversing back, three double book-form slides, fitted rapid rectilinear lens by Laverne, Waterhouse stops, folding stand, and solid leather case, £4 17s. 6d. All above sets guaranteed as described in every detail. On view, City Sale and Exchange, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection Invited.

Bargains in Hand Cameras.—London Stereoscopic Company's twin-lens Artist hand-camera, fitted Black Band lenses. Waterhouse stops, works $f/6$, adjustable focus, full-size finder, three double dark slides, in solid leather case, £11 5s. ; No. 2 Kodak, fitted R.R. lens, time and instantaneous shutter, finder, carries 100 films, covered leather, in solid leather case, £3 17s. 6d. ; B. Daylight Kodak, fitted R.R. lens. time and instantaneous shutter, finder, carries 24 films, covered leather, in solid leather sling case, £2 12s. 6d. ; Watson's 5 by 4 hand-camera, Watson's rapid rectilinear lens, iris stops, roller blind, time and instantaneous shutter, adjustable focus, four double slides, two finders, covered real leather, finest condition, £6 17s. 6d. ; Lancaster's half-plate Rover hand-camera, fitted Lancaster's lens, iris stops, see-saw, time and instantaneous shutter, finder, carries twelve plates, in leather case, £4 5s., as new ; Adams' Otto hand-camera, fitted very fine landscape lens, time and and instantaneous shutter, carries twelve quarter-plates, bag changing, two large finders, lowest, 40s. ; Radial hand-camera, by Marion, fitted "Soho" lens, carries twelve quarter-plates, shutter, two finders, focusser, etc., in leather case, £5 17s. 6d. ; Ariel hand-camera, leather bellows, fitted Wray's 5 in. R.R. lens, rotating stops, Thornton-Pickard shutter, three double book-form slides, finder, complete in case, as new, £5 10s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses. — Optimus 3B quick-acting portrait lens, fitted Waterhouse stops, works $f/4$, focus 10 in., diameter of lens 3¼ in. condition as new, £7 12s. 6d. ; Dallmeyer rectilinear landscape patent lens, fitted Waterhouse stops, grand definition, covers well, 13½ in. focus, size 10 by 8, £4 10s. ; 8 by 5 Grubb aplanatic doublet lens, fitted Waterhouse stops, works $f/8$, best condition, £3 15s. ; Optimus 7 by 5 landscape lens, rotating stops, quite new, 27s. 6d.; half-plate rapid rectilinear, by Atkinson, Liverpool, Waterhouse stops, grand definition, covers well, 15s. ; 7 by 5 rapid rectilinear lens, by Laverne, works $f/8$, movable hood, grand definition, covers well, as new, 27s. 6d. ; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s. ; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works $f/8$, and fitted Optimus plunge shutter, pneumatic release, as new, 60s. ; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works $f/8$, movable hood, as new, 45s. ; 5 by 4 Dallmeyer wide-angle landscape lens rotating (1A patent), rotating stops, grand definition, 50s. ; Laverne ¼ wide-angle rectilinear, finest condition, 17s. 6d. ; Dallmeyer c.d.v. portrait lens (1 B). Waterhouse stop, rack focussing, condition as new, £3 17s. 6d., cost £6 5s. On view, City Sale and Exchange Rooms. 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

ENLARGING APPARATUS, quarter-plate, 5in. condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work. —Hume, 1, West College Street, Edinburgh.

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The AMATEUR PHOTOGRAPHER

Telephone No. 1645

Telegraphic Address: VINEY, LONDON

Offices. 1, Creed Lane, Ludgate Hill, London, E.C.

No. 453. Vol. XVII.] FRIDAY, JUNE 9, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare*.

The Editor is "At Home" on Monday Afternoons from 2 till 5 o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from 10 till 1 o'clock.

Our Views.—The Am. Phot. Annual—A Tip for the Dark-Room—Greaves Again—Protecting our Readers—Defects, and Who Cause them—Convention Programme—The *Studio*—Sir Francis Powell—Notes for Chicago—The Photographic Salon—A P.S.G.B. Congress.

Flotsam and Jetsam (by "Anchorite").

Letters.—Fog (Preedy)—Depth of Focus (Farmer)—Inter-colonial Slide Exchange (Ward)—A Warning, and a Remedy Wanted (Sigma)—Society for Holloway (Langton).

Articles.—Plymouth and District (Pilditch)—Photography in Australia (Kangaroo)—Sodium Sulphite in the Pyro-Ammonia Developer (Bayley)—List of Indian Dark-Rooms—General and Photographic Chemistry (Conrad).

Stereoscopic Competition.

Holiday Resorts.—Up the Thames in a Boat—East Anglia.

Apparatus.—Damp Sheet Detector—Simplex Camera Stand—Uno Hand-Camera.

Societies' Meetings—Eastbourne—E. London—Hackney—Harringay—Lewisham—N. Kent—Oxford—Putney—Tunbridge Wells—W. Surrey—Woolwich Polytechnic.

EDITORIAL DEPARTMENT—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Print Competition, No. 49, Figure Study.—Latest day, June 19th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, June 30th, 1893.)

Our '93 "Annual" will be found, we venture to think, an ornament to any library, as well as a useful reference work. We have this year included a complete treatise on "Carbon Printing," with an illustration; a section on "Practical Work," by Mr. J. A. Hodges, which contains some valuable hints for tyro and expert. Mr. A. Horsley Hinton also gives us practical hints in composition, the same being illustrated with process blocks and pen-and-ink sketches.

To those of an inventive turn of mind, instructions as to the patenting and protection of inventions in all countries are included; and finally the "Holiday Guide" has been extended and brought up to date.

Our '93 "Annual" contains one carbon print and thirteen full-page collotypes, examples of the work of Hinton, Hodges, Mrs. Clarke, Keighley, Ashton, Wain, Perkins, Gear, Wickens, Lamley, and Clarence B. Moore.

◆

Our contemporary, the *Morning*, includes every week a few photographic notes, and we clip the following from those of this week:—

> "In the dim religious light of the dark-room it is at times very difficult to judge when the right moment has arrived for the plate to be removed from the developing bath. When once the negative is fixed, of course the opportunity of dragging out any further detail has gone for ever. There is a way out of the difficulty, and it is this: Provide yourself with a piece of thick brown paper sufficiently large to cover the front of the ruby lamp. Out of the centre of the paper cut a hole about the size of a florin or half a crown. When you wish to determine whether or not the desired degree of density has been obtained, temporarily fix the brown paper over the front of the lamp, and place the negative opposite the hole, when its value can easily be judged, because the ruby rays which would otherwise confuse the eyes of the operator, have been cut off, and those that remain are transmitted through the negative. This is a 'tip' worth knowing, and one which is readily available at all times."

◆

In our issue of July 8th, 1892, we warned our readers against a man named Greaves, *alias* Graves, *alias* Grooves, *alias* Buckley, *alias* Hobson, of Smithybridge, near Rochdale. He immediately commenced a libel action against us, with damages assessed at £500, and in the interest of our readers and respectable journalism we declined to compromise the case. This action was abandoned by Greaves, and we supposed that no more would be heard of the matter, or until some dupe pilloried him.

◆

Now we are pleased to say we have received information from the Superintendent of the Rochdale police that this man is now in custody at Middleton for obtaining a magic-lantern by false pretences, and he is remanded till the 8th inst. "For some time past," thus writes the Rochdale Superintendent, "Greaves has obtained goods from various persons in Great Britain, through the medium of the Amateur Photographer, *English Mechanic, Exchange and Mart, Photography*, etc., under the pretence that he would send them other goods in exchange."

We shall esteem it a personal favour if any of our readers who have suffered by this man will at once communicate with the Rochdale police, so that as strong a case as possible may be made out against him.

It is our intention to protect our readers as much as possible, and we shall be at all times pleased to investigate any case, but we also warn our readers that we do not undertake to settle disputes between manufacturers or dealers and customers. We have sufficient confidence in our advertisers to state that they will not wilfully mislead anyone.

As a case in point we may state that a reader lately sent us a rabid tirade against a certain firm of manufacturers and their goods without any tittle of evidence beyond his own statement. We declined to publish this without further evidence, or to take any notice of it, consequently we have received a still more rabid letter, and worse than all, he has stopped taking in the paper.

It is, of course, needless for us to point out that the proprietors immediately determined to continue publishing the paper, notwithstanding this terrible disaster.

Speaking from a considerable experience, both personal and otherwise, we have no hesitation in saying that many defects in negatives and prints are met with, but in many cases the cause of the same is open to question, and in most cases the evidence is purely circumstantial. This then being the case the verdict should be for the defendants, the manufacturers. The wretched plate or bad paper is a very convenient scapegoat for our own faults, and human nature is sufficiently frail to always take advantage of an opportunity to put the blame on somebody else's shoulders.

The following is the programme of excursions and list of the papers to be read at the Plymouth Convention :—

July 4. Steamer excursion to the Yealm and River Tamar. Invitation excursion of the local committee, the Devon and Cornwall Camera Club, the Devonport Camera Club, and friends, to the members of the Photographic Convention.
„ 6. Excursion to Launceston, Totnes, and down the Dart, Looe, and the Cheeswing.
„ 7. Excursion to Lydford, Bickleigh Vale, Dockyard and Keyham, and Cattewater.
„ 8. Excursion to Princetown, Ivybridge, and Virtuous Lady Mine.

The papers to be read are :—

"Multiple Films," by S. H. Fry.
"Artistic Expression with the Hand camera," by J. Guardia.
"Lantern-slide Making," by Dr. C. L. Mitchell.
"Some Slides from the Marine Biological Laboratory," by J. T. Cunningham, M.A.
"The Special Properties of the Zeiss Anastigmatic Lenses," by Prof. Dr. P. Rudolph, to be read by Mr. J. Stuart.
"Photography in Relation to Medical Record," by A. Pringle.
"Some Points in Connection with Development," by C. H. Bothamley.
"On the Power of Compensating in Development for Variation in Exposure," by Prof. W. K. Burton.
"Recent Developers," by E. J. Wall.

It will be seen from this that several subjects of great interest will be treated of, and our Plymouth brethren have looked well after the excursions, so that, given fine weather, a good time may be expected. We strongly recommend any of our readers who can spare a week at the time to join the Convention.

We have already referred to the new art magazine, *The Studio.* The next issue, for this month, will contain an article, "Is the Camera a Foe to Art?" with the opinions of Sir Frederick Leighton, Millais, Alma Tadema, Frith, Richmond, etc.

Amongst the names of those gentlemen who received the honour of knighthood on the Queen's Birthday we note that of Mr. Francis Powell, the President of the Royal Water-colour Society. Sir Francis Powell is a very skilful photographer, and has carried off one of our gold medals in past years.

With reference to our remark as to Mr. H. Snowden Ward's useful notes for visitors of Chicago, we are pleased to say that he will send a copy gratis to any photographer visiting Chicago.

We publish elsewhere the full list of the Committee and the regulations of the Photographic Salon, which, as previously announced, will be held at the Dudley Gallery from October 9th to November 11th. We hear that the support promised is very general, and that the Committee are specially anxious to obtain the representation of the rising geniuses, so that new or little known workers will stand a chance of making their name.

The P. S. G. B. are certainly to be congratulated on having woke up at last. During the exhibition it is said that an important Congress will be held at the Society of Arts, John Street, Adelphi, and that some really good papers will be read. Delegates of affiliated societies will be specially invited, and a good time is generally promised and expected. Our informant adds, "This is a Roland for their Oliver with a vengeance."

We must confess we were not aware that the Society of Arts was antagonistic to the P. S. G. B. What does he refer to? Although we have conferred with several friends, we do not see the point at all.

Still, joking apart, this certainly promises well, and the parent society is sufficiently strong in good men to warrant our assuming some good papers, and if only they will make an evening meeting there ought to be a good attendance.

Flotsam and Jetsam.

Strange possibilities awaiting photography in the not very dim and distant future are suggested by a paragraph that appeared last Saturday in our sober, and yet sometimes amusing contemporary, *Invention.* It was actually stated there that the Bank of France has engaged an instantaneous photographic operator. The business of this operator will be, when he receives a signal from the cashier, to take a photograph of the person who may be at the counter at that time.

The object, of course, is to secure a record of a suspected individual, and the detective-camera does it nicely, without any fuss and with far more effectiveness than any human detective could do it—even were he Sherlock Holmes himself. It is rather hard on the criminal, of course. He will soon have to give up business if science keeps on thwarting him at this rate, and baffling his most cunningly devised efforts.

Photography has of late shown a distinct antipathy to crime and criminals. It was only the other day that it intervened in the revolting cruelty case which was brought up from Chelmsford for trial at the Old Bailey. A poor drudge of a servant girl was so ill-treated by her mistress as to be almost killed, and one of the witnesses against the mistress was a photograph of the girl taken by an amateur just after her escape from the house of bondage.

This photograph, on the high authority of a police constable who saw the condition of the girl at the time, was a good one, and, together with the other evidence produced, it led to the righteous sentence of two years' imprisonment with hard labour being pronounced on the prisoner.

But these, after all, are not the truest and best uses of photography. The exhibition of Mr. Linley Sambourne's drawings now on view in New Bond Street recalls a far more pleasing instance of its true *metier*. Mr. Sambourne just previous to the opening of the exhibition submitted to the inevitable interview, and told one of the *Westminster Gazette's* young men some things which every artist, even those of the new school, would do well to take to heart.

Mr. Sambourne uses models as far as he can, but when his work is too rapid, as it sometimes is, he calls in the aid of the camera, which he considers "a very useful and valuable adjunct to art." His collection of photographs is an enormous one, and includes both figures and "an almost endless variety of things and scenes that may serve as accessories, as foregrounds or backgrounds."

When the interviewer called on him he was even then using photographs of the nude from which to draw a mermaid. As an instance of his thoroughness and fidelity in matters of detail it may be added that he was intending to run off to Ramsgate "to draw his sea from life."

The extent to which photography was practised, and evidently by amateurs, during the Whitsuntide holiday must have been very noticeable to even the most ordinary observer. Indeed, to such an extent is the camera patronised now that, next to cycling, it may almost be called the favourite popular hobby.

The Epping Forest district was especially well patronised, for the forest glades afford countless pictures of the perfection of woodland scenery, with the vain hope, too, of getting a shot at the deer which roam wild in the more secluded parts. By the bye, in the book which Mr. Bernard Alfieri has just published, "Half-holidays with the Camera," it is stated, and it is a fact for which many photographers can vouch, that written permits had to be obtained to work in the Forest. Is not this a somewhat vexatious and objectless restriction? No photographer would be likely to do any damage.

A new automatic photograph machine is said to be on its way, though it has not yet "come," to use the expressive Americanism. Even when it has, we doubt if it will come to stay; and no true photographer will wish that it should, however far it may outstrip its predecessors. Every advance in accuracy, every mechanical improvement, will be welcomed for the sake of what it may do for science; but the artist, photographer, and the scientist care nothing for automatic machines.

The new machine is said to be so constructed as to hold 240 plates. It may be; but the question is, will any of these plates contain anything worth looking at? We might as well expect good results from a mechanical artist, a painter who worked by clock-work.

It is not photographic, but it is good enough to find its way everywhere—this delicious anecdote, which we cull from the *Journal of Education* for June. A schoolboy was asked to explain the formation of dew. His answer was, "The earth revolves on its own axis once in every twenty-four hours, and in consequence of the tremendous pace at which it travels it perspires freely!"

Anchorite.

Letters to the Editor.

FOG.

Sir,—Having seen the article in your paper of last issue on the way of entirely destroying fog, I thought perhaps two or three ways with which I am acquainted, may be useful to some of your readers. Mr. Rodgers, in his useful little book ("Casket of Photographic Gems"), says that green and red fog may be got rid of by washing the negative after development in distilled water, then plunging it for twenty or forty seconds in a twenty per cent. solution of chloride of iron, and then placing it, without washing, in the pyro developer. Another way to remove green or dichroic fog is Abney's, namely, immerse the negative in the following solution until the image is completely bleached:—

Potassium bromide	30 gr.
Ferric chloride	50 ,,
Water	4 oz.

The negative is then well washed and treated with the ferrous oxalate developer, all the operations being conducted in daylight.

If the fog is only slight and on the surface, it is able to be removed by placing the washed plate in methylated spirit, and carefully rubbing with a clean finger, or else with cotton wool moistened with alcohol.

Fog can also be removed by using Howard Farmer s reducing solution largely diluted, but in the very bad cases it is best to resort to Abney's method.

Of course, I expect all that I have written is known to experienced workers, but perhaps it may be useful to my younger friends troubled with the fog fiend.—I am, etc.,

Digby H. W. Preedy.

* * * *

DEPTH OF FOCUS.

Sir,—I have not a copy of my former letter by me, but if I said the depth varied according to square of focal length and the actual diameter of stop used, it is evident I contradicted all my own arguments, and Mr. Nash's concluding remarks are right.

I should have said it varies according to the focal value of the stop and the square of the focal length. By "diameter of stop" I meant the proportionate diameter of stop, or the ratio it bears to the focal length, generally expressed as $f/8$, $f/10$, etc.

Nobody thinks of measuring his stop diameters except to arrive at the focal values $f/8$, etc., and consequently my letter is not likely to mislead anyone, especially when I started out at first by ignoring depth arising from stops, stating that *similar* stops produced equal results. *Similar* stops is an expression well understood to mean the same proportion, $f/8$, etc.

My meaning was that $f/16$ gave twice as much depth as $f/8$, and that a 4 inch lens gave four times as much depth as an 8 inch lens, using *similar* stops in each, not stops actually equal in diameter.—Yours, etc.,

R. Farmer.

* * * *

INTER-COLONIAL SLIDE EXCHANGE.

Sir,—The editor of *The Australian Photographic Journal*, on behalf of twelve photographic societies in Australia and New Zealand, is arranging a set of slides representative of the best workers in those colonies, which it is proposed to send to this country for circulation amongst such British photographic societies as may desire it. In return the Colonials ask that we should make up a set of British slides together with a brief lecture or notes concerning them.

May I ask all those British societies that are interested in the

matter to communicate with me as soon as possible, giving any suggestions that may occur to them, and stating what they will be prepared to do in the matter.—Yours, etc., H. SNOWDEN WARD.
Memorial Hall, E.C.

[We have already placed a set of "Peak and Dale" slides at Mr. Snowden Ward's disposal for this exchange.—EDITOR.]

* * * *

A WARNING, AND A REMEDY WANTED.

SIR,—For the benefit of other readers, allow me to put before you one of my photographic troubles. A series of negatives taken last summer, which have carefully been packed face to face with tissue paper between and kept in the old plate boxes, now show a number of metallic spots all over the film. These are not quite transparent, and consequently show in the print. Could anyone inform me how to remove these? Is the trouble due to the silver paper used in printing or to the tissue paper? These negatives were not varnished. Thanking you in advance for inserting this in your valuable paper, yours, etc., SIGMA.

* * * *

SOCIETY FOR HOLLOWAY.

SIR,—Might I ask through your columns whether there are any amateurs residing in Upper Holloway who would form a society so that we could help one another on with the various wrinkles one and another pick up. If so, would they communicate at once with me?—Yours, etc., W. H. LANGTON.
677, Holloway Road, N.

Photography in Australia.

BY "KANGAROO."

THERE is now hardly a spot throughout the wide world where photography does not play an important part in the affairs of men. Wherever the hand of civilisation makes its presence felt there our art eventually lays a new foundation on the old lines. The up-to-date and wide-awake people of Australia are in this, as in every other branch of social advancement, well to the front. The work of the Antipodean professional is very often seen in England through photographs sent across the sea by relatives in the land of sunshine; but the amateur is not so well known, although he certainly does exist there, and has considerable scope for the employment of his talents.

THE Australian illustrated papers have long ago recognised the many advantages of photography in pictorial illustration; a considerable part of the pictures of places of local interest which are published in their pages are, in the first place, produced by the aid of the camera. The *Town and Country Journal* (which is something like our *Illustrated London News*) makes a great feature of its photographic illustrations, which, it may be mentioned, are excellently reproduced.

THE photographer there is not troubled with bad light and foggy days, but he sometimes is seriously handicapped by a water famine. We in Merry England are apt to esteem lightly the privileges we enjoy through an abundant water supply, and it is a very rare occurrence for us to be in a state of anxiety as to supply running short. It was feared in some quarters recently that the long-continued dry weather we had been experiencing might seriously effect the supply, but this unusual spell of drought that was beginning to cause dismay in this country only lasted for about thirteen weeks. What would English people think if they had *no rain for nearly three years!* Yet, according to the *Sydney Mail*, this state of things has been prevailing in the interior of South Australia; the road from a place called Oodnadatta to another place called Alice Springs being impassable to all except camels, the cattle and stock on many stations having perished.

THE text-book advice "wash thoroughly in running water for several hours" would be worse than a cryptogram to a photographer living in such a district.

THE Crown Bromide Enlargement Company, of Sydney (which is considered to be the most important concern of its kind in the locality) have sent a large number of their enlargements to the Chicago Exhibition. This firm has only been established about four years, but during that time has sent out over 14,000 enlargements of portraits of all sorts and conditions of men, from ministers of the Crown to the humble artisan.

SOME of these enlargements have to travel many hundreds of miles by coach or bullock team. They have therefore to be carefully packed in specially prepared cases.

THE majority of the colonists seem to prefer a high gloss on their photographs, so that burnishing is much in vogue, nine out of every ten specimens that one sees having undergone this process.

To some of our crack amateurs Australia would be a land flowing with milk and honey. The "picture merchant" would find the Blue Mountains and similar districts a perfect El Dorado; whilst the "flower study man" would never grow weary of exercising his genius in the arrangement and portrayal of the beautiful flowers of the colony. The individual architecturally inclined would be the only one at a discount, for there he would find no ruined castles, ancient abbeys and cathedrals, or (to use a Byronicism) historic "remnants of things that have passed away."

ONE of the Sydney papers relates a story of how an amateur photographer saved the life of an innocent man charged with murder. Two men were spending a holiday, camping in the bush, and they were eventually joined by a third man, whom they were mutually acquainted with. A general quarrel shortly after ensues. One of the men thereupon quits the camp in a passion, and returns home, leaving, however, his rifle behind him in the hands of the last comer. This man, filled with hatred, at last shoots his companion, leaves the gun lying on the ground, and makes himself scarce. The murder being discovered, suspicion falls upon the owner of the gun, for the third man manages to prove an alibi, and the case goes hard against the accused, notwithstanding his assertion of innocence, and that the third man was present at the camp on that particular day. At a critical moment some photographs are handed round, which were taken by a gentleman who on that day had been taking views in the neighbourhood, and who seeing the camp, and finding the attitudes of the men so natural and picturesque, had silently crept up, and exposing a plate without the knowledge of the three men, had gone on his way rejoicing. It was thus proved beyond a doubt that the three men were at the camp together at the time named, for the third man was seen standing up with the gun under his arm, as the wrongly accused man had described. The real murderer, finding no loop-hole of escape, then confessed, and the innocent man was acquitted.

PHOTOGRAPHERS throughout the length and breadth of the mother country will, without doubt, unanimously extend their hands to their confrères in Kangaroo-land; and while wishing them continued and increasing prosperity would be only too glad to welcome some of their work at the future exhibitions to be held in this country.

LIST OF DARK ROOMS IN INDIA AVAILABLE FOR THE USE OF AMATEUR PHOTOGRAPHERS.

ALLAHABAD.—Col. Brown-Constable, 14, Albert Road; Lyell and Co., Ltd.*
AMBALLA.—Law Bros.
BOMBAY.—Treacher and Co., Byculla.*
CALCUTTA.—John Blees, 2, Hare Street *; W. Newman and Co., Dalhousie Square.*
INDORE, C.I.—Herzog and Higgins.
JUBBULPORE.—John Blees.*
KALIMPONG.—Rev. J. Sutherland, M.A.†
LAHORE.—John Blees.*
MADRAS.—Fred. Dunsterville, "Veyasarpaudy";† Phillips and Co., Esplanade Fort;* W. E. Smith and Co., Mount Road.*
MALDAH.—A. L. Spaeth, Bholahat.†
MHOW.—Herzog and Higgins.
SINGAPORE.—E. J. Robertson, Hon. Sec., Photo Soc.

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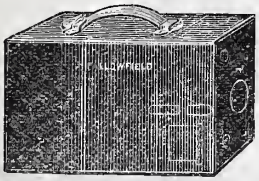
* Those marked with an asterisk are dealers, and keep stock of all kinds of photographic goods.

† Open to any one introduced by the Editor of Journal, or the Hon. Sec. of the Phot. Soc. of India.

HAND CAMERAS for 1893-4.

Fallowfield's 'Premier.'



THIS Camera is specially constructed so that all adjustments can be made on top, and all are in full view while it is being used. It is exquisitely finished in every detail.

THE LENS is specially made by Wray, to cover 5 by 4, and is fitted with four stops worked from outside by Scale.

THE SHUTTER gives Automatic and reliable exposures from 1 Sec. to 1/100th, and is fitted with Newman's Pneumatic Regulation and a Self Cap in front.

FOCUSSING can instantly be done from the outside by the Graduated Scale, any distance between 3 feet and infinity.

FINDERS. Two are fitted with hood covers, and show identical view.

A FOCUSSING SCREEN of Celluloid is also fitted to show actual picture.

PLATE CHANGING is the "N & G" Pattern, and either plates or films can be used.

Size 10 by 5¼ by 5½.

Weight 4½ lbs.

¼-Plate size	-	**£11 11 0**
5 by 4 ,,	-	**£14 14 0**

Fallowfield's 'Facile.'

With Rapid Landscape Lens,
£3 13 6

With Rapid Rectilinear Lens,
£5 5 0

T. E. LLOYD, Esq., writes from Garston, 6th March, 1893:

"I thought you might be interested to see a photo of a fire, taken at 1 a.m. on Wednesday, from my drawing-room windows with your 'Facile' Hand Camera. It will be more interesting still when I tell you it was the only plate unexposed, and was left in the camera since my Scotch tour last August; so it speaks volumes for the perfection of the Camera."

S. WELLS, Esq., writes from Goole, 21st April, 1893:

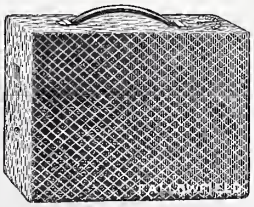
"I have carried my 'Facile' many miles in the great Sahara desert under great heat, and as far north as Iceland and Lapland, and notwithstanding the difference in temperature it is good as new."

ALBERT C. MALKIN, Esq., writes from Liverpool, 7th April, 1893:

"I enclose a view from Pier Head, Liverpool, to show what the 'Facile' can do. I find it very successful, the negatives very sharp, and I have made good enlargements from them."

24 Page Pamphlet, Illustrated, post-free.

Fallowfield's 1893-4 'Facile.'



THIS requires neither sheaths nor backing for Plates, which can be exposed at will in any rotation.

FOCUSSING can be done instantly and accurately at any distance by the scale marked outside.

SPECIAL SHUTTER is fitted with Automatic Release and Lens Cap.

LENS is of the well-known 'Facile' pattern, R R to cover 5 by 4, and 4 Rotating Stops.

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The "**GENERAL**" Plates for all ordinary work are sold, all sizes, in boxes of half dozen, to insure their universal use.

Prices per ½-dozen ... ¼s. 1/3, ½s. 2/6, 1/1 s, 4/6.

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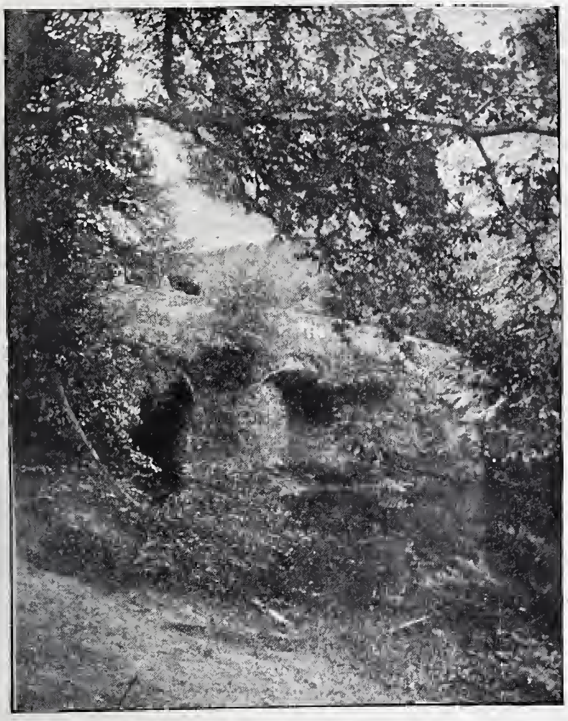
Plymouth and District.

BY F. W. PILDITCH.

(*Continued from page* 369).

OUR SECOND TRIP WILL BE MOUNT EDGCUMBE PARK. This noble park, the seat of the Earl of Mount Edgcumbe, is open to the public on Wednesdays, or on any other days (certain exceptions), by applying to the Manor Office, Emma Place, Stonehouse. I know of no restriction on the use of cameras in the grounds, as my friend and self used ours freely and openly enough last year. Even should there be objections raised, no doubt such would be waived for the Convention's benefit. Scenes on this magnificent seat are beyond my power to describe. Land and sea, harbour and river, fort and vale, fine views of the Sound, breakwater, Drake's Island, and the ‘Three Towns ” are all included in its attractive views.



Plym Bridge.

The rustic cottages of the keepers, backed by wooded hills, and faced by the ever-active scenes of harbour life, form pictures having no rivals in artistic merit. The park, as we see, occupies the whole of a hilly peninsula on the Cornish side of the Hamoaze, and is crowned by Makar Church, about which much legendary lore is recorded. A walk *round* the outside of the Park is very enjoyable, and by starting from Cremyll boat 2d. from Devonport), and traversing the road to Makar Heights, we ultimately reach another entrance to the Edgcumbe Estate known as the Huntsman's Retreat, a cottage nestling at the foot of a ravine running down to the rocky shore of Plymouth Sound. A good day can be spent in the grounds with the tripod, and you will perhaps think that my description of this glorious vicinity is inadequate to do it justice. All I say is, dont miss the outing, or one of the ‘red-letter’ (not label) days in your camera life will certainly have been omitted. For historical and legendary notes *vide* “*McBryde's Ocean and River Trips.*”

TRIP 3.—BICKLEIGH VALE.

“Where are they going to day?” “Bickleigh Vale!” Who has not heard of it? Who has not read of it? Its beauty, like that of our other trips, while not majestic as applied to mountain scenery is certainly romantic. Its glades, its babbling brooks are among its ever-changing aspects. Its bridges are famous. This ‘desirable estate’ is open to the public on Mondays, Wednesdays, and Saturdays. Last year a day's sojourn was to me only too short. Nearly the whole of the time was taken up in admiration, till my friend made me “*work!*” I will now advise as to means of reaching the Vale.

Starting from North Road Station, Plymouth, we booked to Bickleigh Station; this is about the centre of the vale (or at any rate of our concerned part). Walking up the vale and noting the height of the railway, which is far above us, we made the best of our way to Shaugh Bridge. Of course, we had to photograph this. Every one does. Poor bridge! The attraction here is the Dewerstone, which lies remarkably high and from which fine views of South Dartmoor are obtained; and by the time you have accomplished this, spent some time in “capping” the vale, and returned to Bickleigh, you will feel that you are quite ready for the return to Plymouth.

The second time of visiting the vale we shall travel downwards. Bickleigh Bridge divides us from our previous trip up the vale. Secure a picture of the bridge! I was avaricious. I took *two*, but, *sub rosa*, on *one* plate. We now have to walk a distance of four miles through a purely photographic district towards “March Mills,” passing on our way the much-photographed Plym Bridge. From Marsh Mills we return to Plymouth, feeling we have added another notable day to those already chronicled in the history of our camera. Of course, if desirable, this trip may be completed in *one* day.

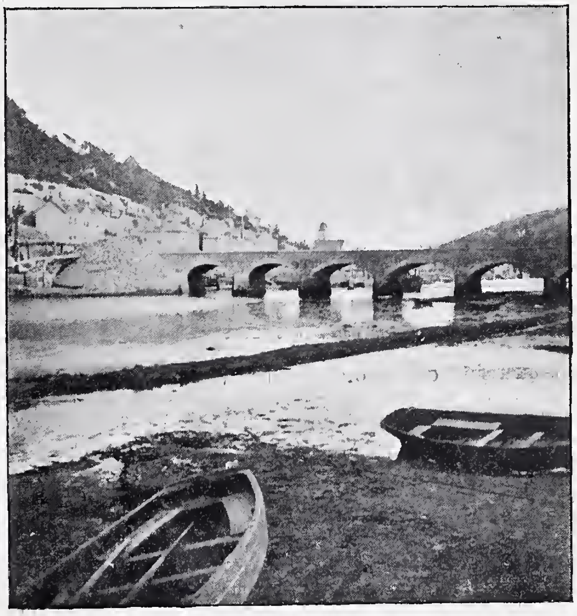
RIVER YEALM.

This is a short coast trip, usually taking half a day, but this will not allow of photographing, as there is so short a time for landing, and there are many items of interest; but to camerists the churches at Newton Ferrers (on the right of our steamer as we enter the estuary) are especially attractive, more particularly the older one, or the Church of the Holy Cross. The following description is extracted from a local guide-book by H. Scrine Hill, Esq., written for the tourists who patronise McBryde's steamers:

“The oldest part of the Church of the Holy Cross at Newton Ferrers is Early English, although the fine arch may possibly be Norman. The plan of the edifice is unique and the orientation very marked, there being two distinct turns to the north, typical of the way the Saviour's Head was bowed on the Cross. A superb font of Devonshire marbles and Derbyshire alabaster and the massive oak ‘waggon’ roof, whose intersections are adorned by no less than 370 bosses, each of a different design, are the chief features of an impressive interior.”

The new church will certainly repay one for the use of a few plates, as of all scenes on this gem of a river I am sure none are to be found which surpass this particular spot.

Opposite Newton is Noss. It depends upon the height of the tide as to how much beyond Newton Ferrers our trip is to extend. Should it be high water, we steam a mile or so between the *wooded* hills, which is such a marked characteristic of Devonian river scenery.



Looe (looking up River).

TRIP No. 5.

Looe, I love thee, I adore thee. Get not dismayed, reader, I am still sane, and not being of a romantic turn I resign my ‘female-worship’ for that of a very pretty and attractive little town on the

Cornish coast. To reach it we started one morning from the Great Western Docks on the well-appointed ss. Sir Richard Grenville, and sailed round the Cornish coast till we came to the above spot, so dear to me; dear perhaps, because out of ten exposures made that day I got ten 'absolutely,' 'truthfully,' ten, not 'forty' good negatives, including our boat and the 'midships,' with the good-natured captain and second mate on the look out for a treacherous line of rocks just ahead of us.

The next view I took was this, which my friends vow was the Looe to which I refer. Readers, believe them not, but you will agree with me that she gives additional charm to an already charming scene.

The view of the bridge at Looe was taken on an Ilford rapid landscape lens, stop *f*/11, time 6 p.m., exposure 7 secs.

A stay of four or five hours is made at Looe, and in a small boat a row will take you up one of the cleanest, clearest, and most sparkling of rivers. It is a glory in itself, and if you like it not as well as the other places I have described it will not be because its beauty does not in every way equal theirs.

TRIP 6.

Dartmouth, my sixth and last trip, is made by steamer, which usually leaves the Great Western Docks at 9 a.m. Clearing the Sound and passing the eastern end of the breakwater, we round two rocky islets (Shagstone and Mewstone, or 'bird-rock,' from *mews*, past the mouth of the Yealm, and then round Prawle and Start Points. May as glorious a morn favour your trip as did the one on the morning I enjoyed it 'two years ago.' Snap-shots of passing events are not prohibited friends, and yachts, fishers, brigs, pleasure steamers, men of war, and the like make good lantern bits.

The Sands, Looe.

NOW FOR THE GLORY OF SOUTH DEVON! We enter the mouth of the Dart (English Rhine), with its castle-fort and the ancient church on our left. Do not omit seeing the latter, and taking (on a plate) the chancel screen (Lat. *cancelli*, a gate). ' But I cannot do justice in writing, nor will you, my brother, photographically justify the place in a week, but don't forget to do this journey, and be sure you sail up to Totnes. Before concluding these notes—which are only at best a poor representation of a land which no written description could qualify—I must remind you to visit the Plymouth 'Billingsgate' or Barbican. The fish auction is always amusing and the life studies numerous, so with your hand-camera you will not only be able to afterwards amuse your friends, but will add interest to the work you have already accomplished.

The few places described by me are only as a "needle in a rug' compared with the many not mentioned, but which will be available if time be at your command; and prior to making my farewell bow, I should strongly advise my 'amateur' friends (for whose benefit this is chiefly written) not to develop on tour.

My method was as follows: I got some pure tissue paper, cut it into strips the width of the long way of the negative, and wrapped the exposed plates in them as I should do if I were folding them one over another in a length of wide ribbon. When a dozen had been folded in this way I made a parcel of them in tissue, then in brown paper, and wedged them firmly into an empty plate-box, the *only* box I took with me—plates I got there—and knowing the numbers of them, with the duplicates in the 'exposure' books, development was certainly intelligible when at home.

THE TOWN OF PLYMOUTH PHOTOGRAPHICALLY TREATED will occupy much of the visitor's time. Plymouth Hoe, with its monuments and sea views, the pier, then again the streets, public buildings, and other items of interest, all call for consideration. But descriptions dealing directly with these I have purposely omitted, as to treat of such would occupy a book in itself, and, as I stated in the beginning, I have only endeavoured to describe places outside the boundaries of the "Three Towns." I sincerely hope, therefore, that I have not failed in my attempt to induce amateurs (or may I hope others who were as yet undecided about joining the Convention?) to make up their minds to go into the West Country next July, and lastly I trust the weather may be propitious, all after results satisfactory, and the gathering of 1893 an unqualified success.

Sodium Sulphite in the Pyro Ammonia Developer.

BY R. CHILD BAYLEY.

To judge by the immense majority of the negatives which one sees nowadays, there must be no more constant ingredient of the developer,—water of course, excepted—than that named in the title; in fact, it might fairly be considered to be regarded by the general run of photographers as quite indispensable, although we are not aware that it has ever been conclusively demonstrated to be so, and its use is still decried by a few of the "old school." Of course, a great many of the negatives to which reference has been made are produced by means of one or other of the newer developing agents, which render the employment of sodium sulphite or the allied metabisulphites of potassium and sodium absolutely essential; but still there must be amongst them many in the production of which pyro and ammonia used in conjunction with *sulphite*, as it is loosely termed, have played a part, and it is to these and these only, that the following remarks have reference.

The employment of this salt, for which we are indebted to the late Herbert B. Berkeley, has for its object the elimination of the very unpleasant yellowish-brown discolouration which is usually, and perhaps unjustly, associated with pyro; this it effects by reason of its affinity for oxygen, causing it to combine with the latter, which otherwise by combining with the pyro would cause the developer to become discoloured rapidly. It was accepted, as the use of sodium sulphite became more general, that the sulphate, formed in the solution by the oxidation of the former, acted as a restrainer by holding back the formation of the image; but from experiments made by Mr. Cowan some years ago this has been shown to be a fallacy, sodium sulphate under such circumstances being quite inert.

In order to come to some conclusion as to whether its presence in the developer is an advantage or not, it is necessary to settle upon the tint of the deposit which is to be regarded as most desirable. The cold black tones, which are now so common, are very useful for transparencies, bromide paper, prints, etc., but it is generally accepted that for negative work they are not all that can be wished, and that for printing purposes where a vigorous brilliant result is required they will not compete with the yellowish-brown results which are obtained by the omission of sulphite altogether. To obtain such black tones one or other of the sulphites must be present in considerable quantity; in fact, to obtain stainless lantern-slides with pyro and ammonia it is advisable to use a ten per cent. solution of sodium sulphite to dilute the developer in place of water, a method which gives very satisfactory results. On the other hand, the more or less discoloured negatives which are obtained by its complete omission, however satisfactory the prints they yield may be, are sometimes of such a colour in the more transparent portions that to obtain a print in any reasonable time, especially in the kind of weather we so frequently are blessed with in London and other large towns, is almost impossible.

The mean between these two extremes is that which is generally adopted by experienced workers, and this is considered to be in the employment of from one to four parts of sulphite to one of pyro, a method of proportion as to which we shall have a word to say presently, equal parts by weight of the two ingredients being probably the most favoured. The resulting negatives frequently, but by no means invariably, possess a greenish hue, and are fairly clean in the shadows, giving good vigorous prints without needing a very long exposure to a bright light in the printing frame to do so.

If, however, instead of adding sulphite to the developer it be compounded with dry pyro, the whole of the water employed having previously been well boiled and allowed to cool, it will be found that quite as satisfactory a result will be obtained as in the case when any proportion of sulphite is used. To those who have never made use of boiled water for compounding the developer, its powers of diminishing staining will come as a very considerable surprise. While even those photographers who have been in the habit of using it in preparing their stock solutions to dissolve the pyro, for it is a very old and almost obvious dodge, would hardly credit at once the additional advantage gained by forming the bulk of the developer with it also.

The water should be well boiled for about five minutes in any convenient vessel—a flask is very handy where a great quantity is not required—and should then be put aside to cool without agitation; the cooling is best effected in narrow-mouth bottles, which should be entirely filled and corked as soon as cold. In this way the water can be kept indefinitely without absorbing an appreciable quantity of oxygen from the atmosphere. The pyrogallol may conveniently be kept in a stock solution, made up as follows:—

Pyro...	480 gr.
Sulphuric acid	1 drop.
Boiled water to make	10 oz.

The sulphuric acid being added last. In this condition it will keep fairly clear for at least as long as it would were it compounded with any quantity of sulphite; it may, of course, if preferred, be use dry. With such a developer, using ammonia as the alkali, trial plates were developed for a quarter of an hour without showing any discolouration worthy of the name. Others which were intentionally over-developed to a very considerable extent, and were in the solution for at least three-quarters of an hour, were only slightly discoloured, the stain being easily removed with a little dilute hydrochloric acid. It is a noteworthy feature of plates developed in this way, that the colour of the deposit is always practically the same; plates developed on different occasions, for varying lengths of time, using developers of different strengths, were all identical in appearance, and took almost identically the same time to print; an aspect in which the method adopted compares very favourably with the results obtained with suphite as generally employed.

It may be fairly assumed then that to make certain of securing stainless negatives, the presence of sulphite is by no means imperative. It is then a question whether its presence in the developer is at any time objectionable, and the answer to this question is for the present doubtful. Certainly some experiments recently made seem to show that it is not at all a desirable ingredient in a developer which is used for stale plates.

Having had by me for a considerable time some plates by a well-known maker, I had occasion to develop one with a pyro-ammonia developer, in which the proportions of the sulphite and pyro were as 4 : 1; the resulting negative showed a considerable amount of red fog, coupled with a metallic appearance on the film; two circumstances which, found together on a plate known to have been originally good, are generally connected with bad storage. In this instance the plates had undoubtedly been kept under bad conditions for twelve months at least. On developing five of the same plates which had received identical exposures, one in a solution compounded as above described without any sulphite whatever, the other four with 2, 4, 8, and 16 gr. of sodium sulphite to the ounce respectively, the advantage of its absence becomes at once apparent. While the first plate was entirely free from the metallic markings, the others were the reverse. That in which only 2 gr. of sulphite to the ounce had been employed was less marked than the other three in which larger quantities had been used, these latter being so badly fogged as to be quite useless, the entire surface of the film being iridescent, and by reflected light the plates appeared quite a deep red colour all over. The fog was almost entirely absent from the first plate, which with that developer seemed to give results which would cause it to be considered perfectly suitable for all ordinary negative work. The sulphite employed for this experiment was, at least as far as appearance went, as good a sample as I have ever seen; at least as good, if not better than that usually sold for photographic purposes; so that it would seem that for stale plates, at any rate, the use of the commercial compound is not to be recommended, and that when it is employed for such a purpose the smaller the quantity used the better the result.

As regards the amount of sulphite, as to which we promised a word above, in most instances it will be found proportioned to the amount of pyro, in a few cases to the amount of alkali, while in others to both. This may be very well where a varying quality of negative is immaterial, but where this is not the case, and it is desired that all the plates should be as nearly as possible identical in oolour, the sulphite must be in a definite proportion to the total amount of solution employed. This will be sufficiently obvious when it is borne in mind that the addition of the salt is made to counteract a property possessed by the water used to dilute the developer, and not to react upon the pyro or alkali. When one comes to put this in practice with every variety of exposure, and consequently varying proportions of the different constituents of the developer, it will be found extremely difficult, if not impossible, and to recommend such a course may seem hypercritical; still, to neglect of this precaution may be attributed the wide variations of colour frequently met with in a few plates developed consecutively, the pyro and sulphite having been kept together in one stock solution; and the fact that unless such a difficult and troublesome method be adopted it is impossible to obtain uniform results from plates which require different treatment, must be placed against the credit of sulphite for this developer.

Holiday Resorts and Photographic Haunts.

UP THE THAMES IN A BOAT.

By W. J. Vasey.

In response to your solicitation in May 5th issue for suggestions for trips which may be enjoyed by any of the recruits or veterans of the noble army of photographers, I would respectfully submit the following hints, which may be interesting (more or less) to any one who may seek dear old Father Thames as their friend when in need of some resort wherein enjoyment and benefit may alike be obtained; and in hope of spending with him a quiet and thoroughly enjoyable holiday amongst the many picturesque scenes which he can unfurl, and return to their homes benefited by the fresh and invigorating breezes which can always be felt when on or near this lovely river.

I will presume the trip be made from Reading to Oxford.

Pangbourne will afford a splendid chance for the enthusiastic photographer to commence operations, there being many delightful spots about here to capture. A little further up the river we come to Streatley, from whose hills a splendid view can be had of the course of the Thames winding its way back and back for miles; and on the other hand a panorama including Goring and Pangbourne, which we have left behind us. From here some good landscapes can be taken—the upper course in the morning, and the lower in the afternoon.

We will continue our journey, and Moulsford will in due time be reached, but as the principal building there is an asylum, we will not venture too close for fear of being hauled inside with camera and kit, so will keep on until we come to Wallingford and then Shillingford Bridge, which strides the banks; this will be worth taking. Then on our left we shall see "Wittenham Clumps" overlooking us now and for several more miles to come.

The best view of these is obtained from above Day's Lock. The afternoon will be the best time to take them; with the lock in the foreground a pretty picture can be made. Don't forget to cross over the bridge and climb to the top of the "Clumps"—it will pay you if a clear day.

This being completed, we continue, and pass Burcote and come to Clifton-Hampden. The Church should not be forgotten, and a view of the bridge and river can be had from the main road (morn.).

Onward and we shall come to Culham Lock; from here we shall catch the last glimpse of Wittenham Clumps, who have been watching us all the way since we trapped and bagged them.

About a quarter of a mile above this lock are two wooden bridges The footpath over the first one leads you to the "Sow and Pigs," which is a truly welcomed halfway house between Clifton and Abingdon; and when there, if you are not sufficiently merry from the stimulating properties of the "fine ales and stout," there is a good set of bells for those endowed with musical talent to "chime" away on until your heart's content. The second one will form a nice picture, taken from the west side with the overhanging elm trees. A few more long strokes will bring you into the main stream again, where you have a splendid reach of water, and if a sail at your command you may have a good run.

From here will be seen another landmark, viz., St. Helen's spire, Abingdon, which for many years was in a leaning position, and was recently taken down and reconstructed. In and around this ancient borough will be found much to interest the visitor, especially if of antiquarian taste. The following are a few tips which may help the stranger. The best view of St. Helen's Church is from the left bank near Mr. Stevens's landing raft (aft.), also from the bridge (morn.). Overlooking the embankment and esplanade are some pleasant almshouses; on the end of one, at the entrance to the churchyard, is a painting of the holy cross which stood in the market place until destroyed by Waller's army, May 30th, 1644. It was opposite this spot when two years ago last January a sheep was "roasted" on the ice. Some who then partook of a "slice" have not yet forgotten the peculiar flavour imparted to it by the devils (open fire baskets) over which the carcase was suspended on a spit. Perhaps this is owing to the special cooks selected for that occasion omitting to supply the requisite onion sauce, which no doubt would have mollified it. We will go on now and look at the County Hall (now used as a technical school), which is an elegant building of freestone, and will make a good architectural subject (aft.), St. Nicholas Church with Council Chambers adjoining (aft.), the statue of Her Majesty the Queen, a Jubilee gift to the town by E. J. Trendall, Esq. (morn.).

A walk through High Street and Bath Street will bring you to Park Road, where a splendid avenue of trees leads on to the Albert Park, in which is a statue of Prince Consort. The time to see this public recreation ground in perfection is early morning.

It may be good news to know that the traveller can replenish his store of ammunition, and use a dark room, at a small charge, in this town at 11, Broad Street, which will be a great convenience at this stage of the journey.

One day should be spent at Nuneham, the seat of Aubrey Harcourt, Esq., which is about two miles up stream. Tickets available for Tuesdays and Thursdays *only* for permission to land and entrance to the Park can be obtained by enclosing private address and stamped envelope to Mr. Gale, steward, Nuneham Park, Oxford.

Some good snapshots can be made at the swans in front of the thatched cottages which are close to the banks and at the base of the lovely wood; also at the deer in the Park. The rustic bridge makes a charming picture from almost any point. Teas are provided at very moderate charges at the cottages, and when strawberries and cream are in season they disappear almost as fast as they are put on the tables, after some people have been romping up and down the banks of the wood, and have thereby created a ravenous appetite.

Above Nuneham we come to Sandford paper mill, and thence to Iffley, where are some good views to photograph. From here the lofty spires of the classical city of Oxford will be seen, and before arriving we shall pass by the many house-boats belonging to the Colleges. These can be best seen from Folly Bridge.

Oxford abounds in subjects worthy of taking, and I feel I should be intruding on Mr. Editor's valuable space too much to enumerate them. Should the visitor be anxious to obtain some good pictures of avenues, he will find some magnificent ones in the "Broad Walk," which is totally hidden from the streets.

Of course, there are hundreds of other subjects and spots that present themselves to the minds of the numerous pleasure seekers who annually avail themselves of enjoying this luxurious trip (in fine weather), and will charm the photographer so much that the temptation to take an impression, that when "sweet home" is again reached will faithfully remind him of days gone by so happily spent with Father Thames, will be irresistible.

STEREOSCOPIC COMPETITION.

W. I. CHADWICK.

AT the time I accepted the invitation of the Editor to adjudicate upon the slides sent for this Competition I had no idea or intention of making any remarks further than to award the prizes, but some weeks after I had complied with the Editor's first request, and at a very pleasant interview with that gentleman in the editorial office, I was beguiled into a promise to write a report and offer a few remarks and criticism on the work sent in.

Now, as there can be no fixed laws or rules to guide our judgment in matters of this kind, it would be simply impossible for me or anybody else to make awards, offer remarks, or criticise pictures equally gratifying to all concerned, and in doing what I have been invited to do, I am fully aware of the consequences. If in the course of my rewards I should ruffle the feelings of any competitor, I assure them that it is not my intention to do so. This is not a personal matter at all. I have spent many hours examining and deliberating upon these slides, and have conscientiously performed the duty I undertook without prejudice or favour in any way.

Collectively, I believe these to be the best stereoscopic slides ever sent to any competition, and those people who talk of "the good old days of the stereoscope of thirty years ago" can from now and for evermore remain silent on that subject, for there never were stereoscopic slides made by amateurs in the "old days" that could compare with most of those entered in this competition. I admit that such an assertion requires to be qualified. Well then, the amateur in "the good old days of thirty years ago" had not the facilities of the amateur of to-day; there were no such things as Mawson's or Thomas's transparency plates in those days, and there were very few either amateur or professional photographers who could make any sort of transparencies at all approaching those turned out by amateurs of even very limited experience at the present time.

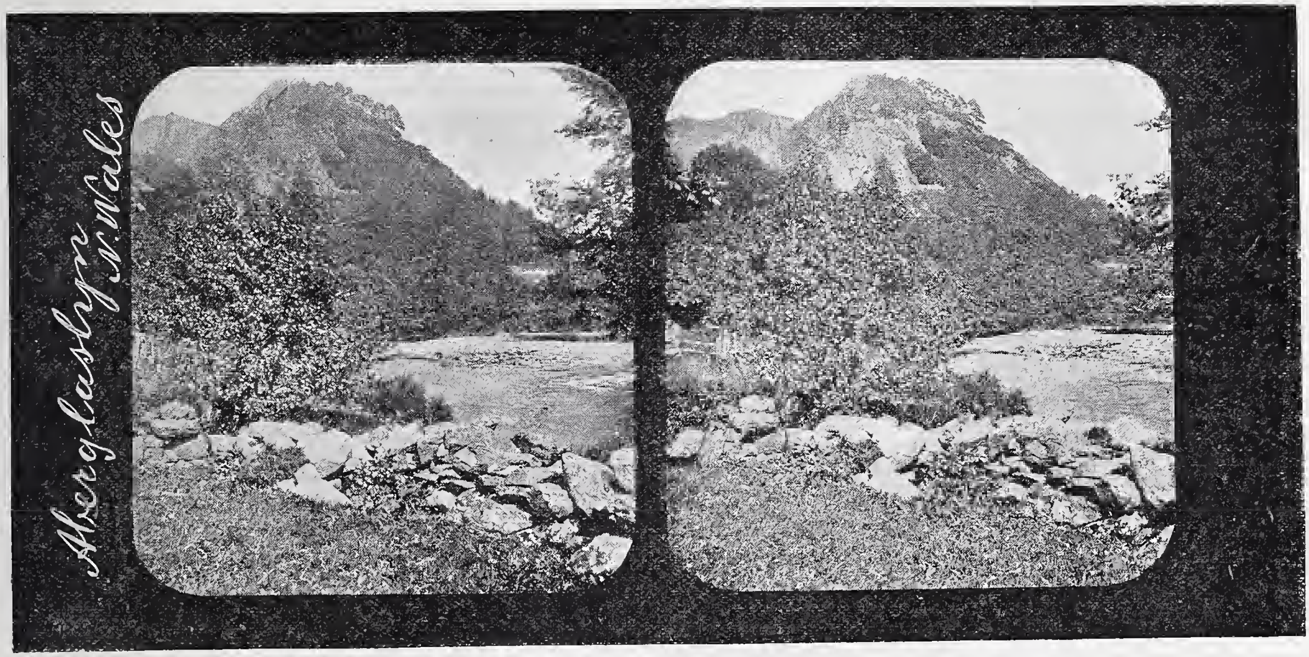
I received from the office of the AMATEUR PHOTOGRAPHER a case containing twenty-three series of slides, each series numbered consecutively 1 to 23. The Editor retaining the names of the competitors, will, I suppose, supply the names to the numbers given in my report:—

No. 22.	J. W. HUGGINS	*Gold Medal.*
„ 15.	J. HEDLEY ROBINSON	*Silver Medal.*
„ 8.	H. G. BRIERLEY	*Bronze Medal.*
„ 16.	J. E. ELLAM	„ „
„ 6.	W. TAVERNER	*Certificate.*
„ 21.	J. H. SPENCER	„

It will be seen that two Bronze Medals have been awarded, whereas only one was mentioned in the conditions. I have been obliged to adopt this course, being unable to decide which of No. 8 and 16 were the best, and I freely confess never to have had so much difficulty in awarding prizes in any previous competition I ever had the honour to be engaged upon.

Technical or photographic excellence is only *one* thing in a competition, and, of course, it has its points. This has been so uniformly good, that artistic merit has had a vastly predominating influence.

No. 22 Series. J. W. HUGGINS (Exeter). *Gold Medal.* Twelve transparencies on glass. These are without doubt the most meritorious slides in the competition, and yet there is not a subject in the lot that a similar one could not be found in almost any country village; it is the lighting, the composition, colour, and general treatment of the subject that stamp these slides as the work of an artist. They are every one *pictures*, and made out of very little material too. "A Water Study" is nothing more than a piece of waste land flooded with water, a brick wall in the distance, with reeds growing in wild confusion. There is no photographic detail in the wall; in fact, there is no particular detail anywhere, and it was not intended there should be; the wall is in deep shadow, well broken up by trees and reeds. The strong point is the lighting and the reflections on the water. The general disposition of the light and shadows is well balanced, and the colour, too (blue), is most suitable. As a subject for the camera a hundred photographers would pass it unnoticed; indeed, under any other conditions of lighting, printed in any other colour, mounted in any other shape, it might not attract attention. "Shifting Potatoes" is another example of artistic skill. Such a subject could be found in any country lane. The man at work is *the* point in this picture; the very old-fashioned boy, who looks as though he had been "dug up," is accessory to the man, and well disposed. Then the colour, a decided sepia, is just what suits the subject (when I say sepia I do not mean a warm black—I mean *sepia*). Had this been printed in blue as the "Water Study," or had the "Water Study" been printed in sepia, the colours would have been incongruous. The colours, too, are not the result of accident, but display good judgment, as does also the mounting in masks of shapes most suitable to the subjects.



I would suggest that these slides, and, in fact, that all stereoscopic transparencies, be backed by fine ground glass—a single piece of ground glass in the stereoscope is not sufficient.

No. 15. J. HEDLEY ROBINSON (Tynemouth). *Silver Medal.* Twelve transparencies on glass. This is a capital series, in great variety of subjects—open landscapes, shady lanes, thinly wooded dells, architecture, and interiors. Are well-balanced pictures and technically perfect photographs. In a view of "Bolton Abbey" we have a few branches of trees hanging from the top, or at any rate with no visible means of support; this is a frequent mistake made by stereoscopists, who introduce any sort of over-hanging branches, twigs, etc., with the idea of increasing the stereoscopic relief, and thus give distance to the remaining subject, but, as I have said, it is a mistake, it is not required, and is most inartistic.

No. 16 Series. J. E. ELLAM. *Bronze Medal.* This is a series of twelve paper slides. They are printed on gelatino-chloride paper, squeegeed, and very carefully mounted on sunk cardboard masks. But the mounts are far too light in colour, they attract attention in the stereoscope, therefore they should be dark colour, and particularly the edges should be dark. The stereoscope is intended to convey an impression of a solid natural object, not that we are looking at a picture on a grey mount. However, the subjects are excellent and in good variety—architecture, ruined abbeys, flower studies, river scenery, and four well-composed pictures of sheep shearing. Taken as a lot they are about as good a set of paper slides as I have ever seen, and these could not be passed over without awarding a bronze medal.

No. 8 Series. H. G. BRIERLEY (Huddersfield). *Bronze Medal.* A series of twelve transparencies on glass and a long way above the average. "St. Clement's, Truro," is a very pretty picture, but I am not sure if it would not be improved by a circular mount. The snow and frost scenes are, without doubt, the best winter scenes in the competition, and the view at "Criccieth, North Wales," is also a good picture, well lighted and fairly balanced, but it might be improved by another shape mount, cutting off a piece of the foreground and thus bringing the horizon lower down in the picture. "Aberglaslyn" (No. 9) possesses very little artistic merit. "Seven Islands, Bolton Woods," is too hard for the stereoscope; no doubt this is a fault in the negative by being exposed in mid-day, or at any rate in too strong a sunlight for this class of subject. "Aberglaslyn" (No. 8) could be improved by mounting with less foreground and more sky.

No. 21 Series. J. H. SPENCER (Chester). *Certificate.* A series of eight transparencies on glass. These are the most technically perfect photographs in the competition, but they are mostly interiors and do not show the same variety as most of the other series. The beautiful interiors of Eaton Hall, statuary, staircase, and corridor, would be taken from practically the same point of view by fifty photographers, and in these photographs there is no scope for the display of artistic skill; the *artist* has been there before the *photographer* arrived, the conditions of lighting had already been arranged by the architect. Adjudication on a dozen photographs of these interiors could only be based on technical excellence, and much the same argument can be applied to the interior of Chester Cathedral. The Equestrian Statue, "Hugh Lupus," in the grounds or courtyard of Eaton Hall has not been taken from the best point of sight. The photograph is a good architectural *elevation* of the statue and the massive pedestal on which it stands. The picture would have been improved with a little more perspective. Then again, we have either too much pedestal or not sufficient. Another quarter of an inch more foreground would have shown on what the pedestal was standing and would have relieved the plainness of the same. The "Winter Scene on the Dee" is the best picture in this series.

No. 6 Series. W. TAVERNER (London). *Certificate.* A series of twelve transparencies on glass. Good all-round work, though one or two are inclined to be "hard." "A Quiet Ramble in Epping Forest" and "A Pretty Path in Wanstead Park" are both good pictures of difficult subjects. "In the Fields near Hale End" is a very pleasing picture of its kind, but "Ramsgate Pier" and "Ramsgate Harbour" are not the same class of work at all, and would have been better left out. The two slides "On Margate Sands" are excellent for what they are, but there is too much *photograph* and too little *victure* about them.

(*To be continued.*)

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General and Photographic Chemistry—XVII.

By E. C. Conrad, F.C.S.

THE NON-METALLIC ELEMENTS AND THEIR COMPOUNDS.

(*Continued from page* 232.)

Glycerine is a colourless, viscid liquid, with a sweet taste. Its S.G. is 1·27, and it boils at 290° C. At a low temperature glycerine crystallises, but on heating it darkens and decomposes. U.: Glycerine is an antiseptic, and is employed in the manufacture of various toilet requisites and drugs. U.P.: As a preservative for solutions of pyro, to retard the decomposition of gelatine, and as a restrainer in developing platinotype prints.

Ethyl oxide. Syn. ether, sulphuric ether $(C_2H_5)_2O$. M. By distilling alcohol with sulphuric acid, the reaction takes place in two stages. Eq.: (1) $C_2H_5HO + H_2SO_4 = C_2H_5HSO_4 + H_2O$ and (2) $C_2H_5HSO_4 + C_2H_5HO = (C_2H_5)_2O + H_2SO_4$. P.: Ethyl oxide or ether, when pure, is a colourless, fragrant, mobile, volatile, and inflammable liquid having a S.G. of 0·720 and boiling at 35·5° C. Ether burns with a white flame and has not been frozen. The vapour of ether is very heavy, having twenty-five times the density of air, and rolls along a table or the floor for a considerable distance so that bottles containing this liquid must be tightly corked to avoid ignition. Alcohol and ether mix in all proportions. *Test for purity:* Ether, if pure, will not destroy the colour of iodine tincture. U.: To produce cold by its rapid evaporation; as a spray, to numb wounds and stop bleeding; to dissolve resins, essential oils, iodine, etc. U.P.: In the preparation of collodion.

The Acids.

Formic Acid, CH_2O_2. Oc.: In the bodies of ants and some caterpillars, and in stinging nettles. M.: By the complete oxidation of methyl alcohol, etc., its potassium salt can be obtained by passing carbon monoxide into a solution of caustic potash. Eq.: $CO + KHO = KHCO_2$. The best method of preparing it is by heating crystallised oxalic acid with concentrated glycerine. Eq: $C_2H_2O_4 = CH_2O_2 + CO_2$ P.: Formic acid is a colourless, clear liquid with a pungent odour; its S.G. is 1·233; it boils at 100° C., at 0° C. it forms large plate-shaped crystals. The strong acid attacks the skin, forming painful blisters. Formic acid mixes with water, alcohol, and ether in all proportions. It is monobasic, only one of its hydrogen atoms can be replaced by a metal. *Test:* A solution of the acid heated with nitrate of silver reduces the salt, forming a mirror of metallic silver on the sides of the tube. U.P.: In some collodion developers.

The Formates.—Formic acid forms a number of salts, all of which are soluble in water; they give dark-red-coloured solutions with ferric salts.

Acetic Acid. Syn., vinegar, pyroligneous acid, $C_2H_4O_2$. Oc.: In the juices of plants and in animal fluids. M.: By the oxidation of ethylic alcohol. If dilute alcohol is exposed to the action of the air by being allowed to slowly flow over stacks of shavings or small sticks it is gradually oxidised; by adding a little yeast the action takes place quicker. Wine is generally soured by being exposed to the air in jars, with a little vinegar, at a temperature of about 30° C. Carbonic acid is always given off during the reaction, Acetic acid is also formed by the following methods:—(1) The distillation of dry hard woods; (2) By distilling dry sodium acetate with strong sulphuric acid. P.: Acetic acid is a thin colourless liquid of a pungent odour and sharp taste. Pure acetic acid is also obtained as colourless transparent crystals, called *glacial acetic acid*; at a temperature above 15° C., these melt, forming a liquid, of S.G. 1·063 boiling at 120° C. Ordinary vinegar generally contains about 10 per cent. of the pure acid, and a little sulphuric acid is often added to prevent decomposition. U.: In pharmacy and as a condiment, for which purposes it must be quite free from its copper and lead salts. U. P.: As a restrainer in acid development, and as a solvent for gelatine.

The Acetates.—Acetic acid is a monobasic acid, and all its salts are soluble in water; the acetates of lead (sugar of lead) and copper (verdigris) are poisonous. The normal sodium and potassium acetates can take up a molecule of acetic acid to form the so-called acid acetates, and by uniting with a molecule of a metallic oxide form the basic acetates.

Oxalic Acid, $C_2H_2O_4$. Oc.: Many plants contain the potassium or calcium salts of this acid. M.: Oxalic acid can be prepared by acting on sugar, starch, etc., with nitric acid or on sawdust with caustic potash. The oxidation of the sugar can be expressed by the Eq.: $C_2 H_{22}O_{11} + O_{18} = 6C_2H_2O_4 + 5H_2O$. P.: Oxalic acid forms colourless transparent crystals, containing two molecules of water, which can be expelled at a gentle heat. The crystals are soluble in eight parts of water; the solution has a strong acid reaction and is very poisonous. Oxalic acid heated with sulphuric acid is decomposed, forming a mixture of carbon monoxide and dioxide. *Test*: A soluble calcium salt gives a white precipitate which is insoluble in acetic but soluble in nitric acid.

Oxalates.—The acid is dibasic (both its hydrogen atoms can be displaced), and therefore forms two series of salts, which are mostly insoluble. The acid and its soluble salts are all poisonous, the antidotes are chalk or magnesia. All the oxalates are decomposed by heat. U. P.: The following are some of the principal oxalates and their uses:—*Potassium ferrous oxalate* $(FeC_2O_4K_2C_2O_4)$ (usually made by mixing saturated solutions of ferrous sulphate and potassium oxalate) is employed as a developer, while *ferric oxalate* $(Fe_2(C_2O_4)_3)$ and *ferric sodium oxalate* $(Fe_2N_2(C_2O_4)_4)$ are used in platinotype printing-out processes. *Potassium oxalate* $K_2C_2O_4$ is used for developing platinotypes.

Citric Acid, $C_6H_8O_7$.—Oc.: In lime and lemon juice and also in gooseberries, currants, and other fruits. M.: This acid cannot be prepared synthetically. It is extracted from the fruit juices by heating, adding lime, washing, and decomposing the calcium citrate produced with sulphuric acid, filtering, concentrating the solution, and allowing the acid to crystallise out. P.: Citric acid forms white, transparent crystals of a pleasant acid taste, easily soluble in water. U. P.: As a preservative for sensitised paper. *Tests*: A solution of citric acid gives no precipitate with lime-water in the cold, but on boiling a white precipitate is formed which is insoluble in caustic potash solution. It gives no precipitate with potassium acetate.

Citrates.—The alkali citrates are soluble, the citrates of barium, strontium, calcium, lead, and silver are insoluble. *Ferric ammonium citrate* $Fe_2(NH_4)_2(C_6H_5O_7)_3$ is employed in the blue printing process. *Tests*: The solid salts blacken on heating and give off irritating fumes.

Tartaric Acid, $C_4H_3O_6$.—Oc.: In grapes, pineapples, and other fruits. M.: From *tartar* or argol (an impure potassium tartrate deposited from grape juice during fermentation) in a somewhat similar manner to the preparation of citric acid, the lime salt being formed and decomposed, but on account of the impurity of the argol it is usually first dissolved in hot water and allowed to crystallise, forming *cream of tartar* $C_4H_5KO_6$. P.: Occurs in large, colourless, transparent crystals, easily soluble in water and of a strong acid taste. *Tests:* Solutions of the acid give with limewater a precipitate in the cold, soluble in caustic potash solution, and reprecipitated as a jellylike mass on heating (distinguishing between tartaric and citric acids). U.: Tartaric acid is largely used in calico printing. U. P.: As a preservative and in printing-out emulsions.

Tartrates. — *Rochelle salt, potassium sodium tartrate* ($C_4H_4KNaO_6$), used as a purgative and in blow-pipe reactions. *Tartar emetic*, or potassium antimonious tartrate ($2C\ H_4K(SbO)O_6$), and the acid and neutral potassium and sodium salts are the principal ones. *Tests* The solid salts blacken on heating, evolving the odour of burnt sugar.

Gallotannic Acid, or Tannin, $C_{14}H_{10}O_9$. This substance is an example of a large class of substances forming the astringent principles of plants, and spoken of by the general name of tannic acids or tannins. Oc.: Tannin occurs in nut-galls (excrescences produced on oaks and other trees by the gallfly), sumack, tea, and other plants. M.: Tannin is extracted by exhausting powdered nutgalls with a mixture of alcohol and ether, separating the heavier liquid and evaporating it. *Tests*: Tannin gives no colouration with ferrous salts, but with the ferric salts a deep bluish black precipitate is produced which is the basis of writing inks. Most of the other tannins act in the same way, a few give greenish precipitates. P.: Tannin is a slightly yellow, porous mass, soluble in water, and of an astringent taste. U.: The tannins are largely used for dressing leather, on account of their property of uniting with animal membranes and rendering gelatine insoluble in water.

Gallic Acid, $C_1H_6O_5$.—Oc.: In nut-galls, etc., with the tannins. M.: (1) By exposing the moistened galls to the atmosphere for some time, and pressing and extracting. (2) By boiling gallotannic acid with acids or alkalies. P.: Crystallises in slender prisms of a silky lustre, sparingly soluble in water, readily soluble in alcohol. Melts at 200° C., and at about 240° C. splits up to form pyrogallol and carbon dioxide. U. P.: A solution of gallic acid is sometimes employed to soak gelatino-bromide plates, to give increased density in alkaline development.

(To be continued.)

Apparatus.

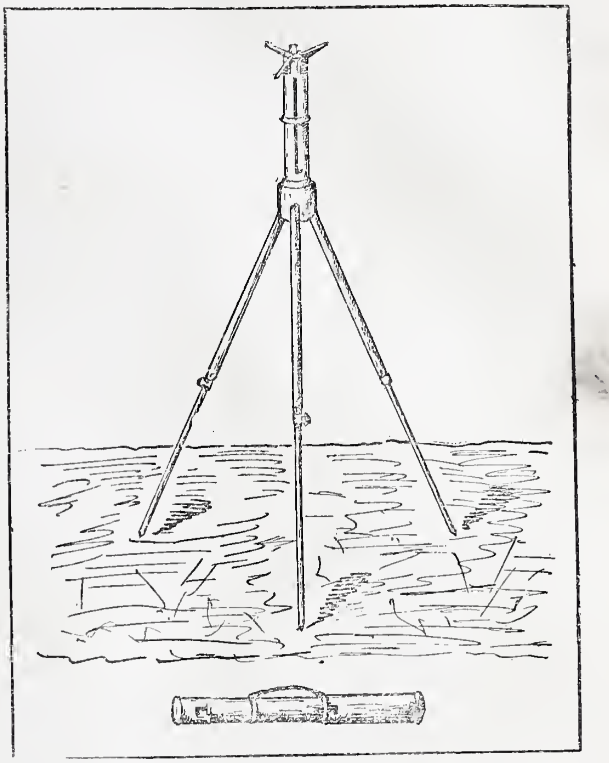
DAMP SHEET DETECTOR.

A. H. BAIRD, of 15, Lothian Street, Edinburgh, has sent us a sample of this, which ought to be useful, and comes quite *apropos* at this season of the year. If damp sheets are suspected, a slip of this specially prepared paper is placed between them, and if damp is present the paper turns a deep brick-red colour.

It ought to be exceedingly useful to tourists. Price 1s. per box, post free 1s. 3d.

THE "SIMPLEX" CAMERA STAND.

Benthall & Co., of 13, Victoria Street, S.W., have submitted one of these new metal stands for notice. When closed it is only 27 in. in length, and weighs about 3½ lb., and can be easily carried, as a leather handle is affixed, which is also well balanced. On taking off the caps, the legs immediately slide down, and are fixed by a half turn of a bayonet joint, the lower leg being adjustable by a thumbscrew. The camera screw is a fixture, and therefore cannot be lost, and it will fit most of the ordinary bushes, but a spare plate is also provided.

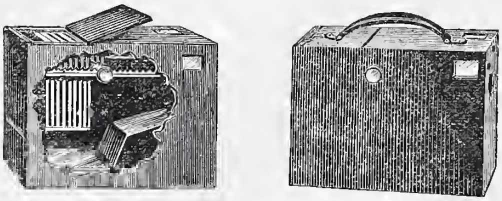


The height of the stand when open is 50 in., and its greatest diameter 1¾ in.

It is strongly constructed of enamelled steel and aluminium; and as it can be used both for hand-cameras or stand-cameras up to 10 by 8, can be conveniently carried on tour or on cycle, and is very firm and rigid, it can be recommended for practical men. Price 35s.

THE "UNO" HAND-CAMERA.

The "Uno" Camera Company, of 46, Southampton Buildings, Holborn, have sent us one of the above for notice. It is a wooden box measuring 8½ by 5 by 6ins., and covered with black waterproof cloth, and weighs 2½lb. It is fitted with an achromatic lens of 5¼in. focus, with a segment shutter fitted inside the camera, exposures being made by pulling a string. Two finders and a circular level are also provided; by turning a small catch in front of the camera, time exposures may be given. Changing is effected by turning a milled head at the side, which releases a plate, which is carried in a sheath, and the plate falls on to the inclined plane and thence to a well at the back of the camera. The sheaths are placed in grooves, the milled head actuating a rack and pinion, which allows each plate to fall away. An indicator for marking the number of plates exposed is also provided at the side.



It is certainly cheap for the price, 12s. 6d., post free 13s., and, for those who cannot afford more, is worth attention.

We have also received the Bothwell Camera Clamp and Wynne's Infallible Exposure Meter, notice of which will appear next week.

East Anglia.

QUIET old-world villages nestling round gray church towers; warm, red-roofed farmhouses peeping out from a great, wide world of verdant meadowland, through which threads many a winding river; a low horizon, against which the elms and poplars stand out sharply clear in the mellow evening light; and a sturdy race of true sons of our Anglo-Saxon forefathers—what more can the artist in photography wish? All this, and much more than this, may be found in the agricultural districts of East Anglia, amongst the north folk and the south folk of that historic land. It is a land of streams and woods, of breadths of moor and sedge, a land of churches too. The artists have long found it out, as many a picture in this year's and previous years' Academy exhibitions testifies; and there is in it a wealth of subjects for the camera, pictures made ready by Nature, that great artist who can be matched by none. It is the very season for holidays. The hot, dry weather makes tours even more wearisome than usual, and how is a week-end to be better or more pleasantly spent than in such rural spots, with a camera to record and bring away faithful and permanent impressions of the places visited?

The only difficulty is how to choose and where to go. The Great Eastern Railway, whose system covers this district, provides a perfect *embarras de richesses* in its special trips to rural resorts and places of interest in these districts. Take Norwich, for instance, one of the most interesting as well as one of the oldest cities in the kingdom. Thomas Fuller called it in his day "The city of gardens—either a city in an orchard, or an orchard in a city, so equally are houses and trees blended in it," and the quaint description is almost as applicable now. It is within easy reach of town, and forms a splendid centre for the tourist, especially the tourist with a camera. Both in the city and around it he will find pictures ready to his hand enough to occupy him for weeks. The rivers Wensum and Yare wind round about it, gleaming silver-white among the famous gardens and the pleasant-shaded trees. The grim old castle-keep, and the stately cathedral with its soaring spire; the storied remains of an earlier age in the Tombland, in the cathedral precincts, the closes, and the gates of St. Ethelbert and of Erpingham; the picturesque market-square, crowded on Saturdays with visitors from all the country side, from the squire downwards to the roaming gipsy; the fine old parish church of St. Peter, one of the best examples of the perpendicular gothic style of architecture, with one of the most musical peals of bells in England, too, hung in its tower—it is no wonder that Norwich holds so high a place in the opinion of artists, and produced men like the Cromes, father and son, whose studies of river scenery and moonlight effects are famous, and like Cotman, whose water-colour pictures have enshrined so much of the exquisite scenery to be found in and around this old cathedral city.

But Norwich, rich though it is in subjects for the camera, is not the country. That lies all around it, such country as is to be found nowhere else in England, or in the world for that matter. For close at hand is all the beautiful Broad district, excellently served by the trains of the Great Eastern Railway. From the Thorpe station at Norwich one may go north to Wroxham and Cromer, passing Worstead, where the exiled Flemish weavers first settled, and laid the foundations of their industry in England; or east to Acle and Yarmouth; or south-east to Lowestoft. And whichever way one goes one is sure to pass over quiet rivers and by silver meres or lakelets, set in verdant meadowland, with white and dun sails flashing and glowing in the summer sun. It is the Holland of the great Dutch masters—with a difference: Holland idealised, enriched with the beauty of English pastoral scenery. These eastern counties have too long been left neglected; but of late their charms have been more appreciated, and they bid fair to become the most popular haunts of all who love to follow where old nurse Nature leads. Every broad has scores of pictures in it, effects of light and shadow across the placid bosom of the waters, quiet corners where the wind nestles lovingly among the reeds; and there are ever the picturesque wherries with their great swelling sails, and the other smaller craft that ply these streams and lakes for pleasure or on business, to lend the touch of human interest to the scene.

Or one may go on straight to Cromer, if it be so desired; to the Etretat, as it is called, with its curious resemblance of conformation and position to the little Normandy fishing village. And at Cromer and in the charming country just over the shoulder of the hills, on the brow of which it stands, overlooking the sea, bathed in sunshine all day long—for the coast runs due east and west and the sun rises out of and sets into the sea—there is a very treasure-house of nature's beauties. From the sands rise up the rugged sandy cliffs in most picturesque outline, and from them one looks seawards over the dancing foam-crested blue of ocean, and landwards over gorse and fresh green fields to densely wooded hills. This is always the perfection of scenery where the sea and country meet, and in the height of summer bloom the crimson flowers of Poppyland, flaming out from the corn fields and heralding the gorgeous hues that, when eventide draws on, overspread the western sky. Everything conspires to promote the visitor's comfort and enjoyment. Special tourist tickets are provided for his convenience, or if he pleases there are special tickets for a Saturday to Tuesday trip. Circular coaching and railway tours enable him to visit other places while he makes his abode at one particular spot, and there are steam launches and craft of every kind at Wroxham, and other places to take him over the Broads. In short, there are no places with more possibilities of enjoyment and of pleasure than the holiday resorts of East Anglia.

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Societies' Notes.

THE following are the Committee and rules of the Photographic Salon, 1893:—Bernard Alfieri, J. S. Bergheim, Shapoor N. Bhedwar, Valentine Blanchard, Rowland Briant, Tom Bright, T. M. Brownrigg, Arthur Burchett, A. Buschbeck, Eustace Calland, H. Hay Cameron, Lyonel Clark, Francis Cobb, Hector Colard, Walter L. Colls, William Crooke, Henry E. Davis, George Davison, J. Gale, John Pattison Gibson, Karl Greger, William Asbury Greene, Alfred Horsley Hinton, Frederick Hollyer (Treasurer), Richard Keene, Baron Liebig, Alfred Maskell, H. P. Robinson, Ralph W. Robinson, Baron Nathaniel Rothschild, Lyddell Sawyer, Francis Seyton Scott, Henry Stevens, J. Strakosch, Frank M. Sutcliffe, Harry Tolley, Carl Ulrich, J. B. B. Wellington, H. Van der Weyde, B Gay Wilkinson, jun., W. Willis. 1. An exhibition of photographic pictures, to be called the Photographic Salon, will be held at the Dudley Gallery, Piccadilly, London, W., from October 9th to November 11th, 1893. 2. Careful consideration will be given to all pictures entered for exhibition, and a selection of works of pictorial merit only made by a Committee. 3. Foreign as well as English photography will be represented. 4. The aim of the organisers of this the first Photographic Salon is to inaugurate a series of exhibitions (which it is hoped may be annual ones) bringing before the public the best productions of photography solely from the pictorial point of view. 5. No awards are offered, and no charges made to exhibitors. 6. The usual charge of 1s. will be made to the public for admission. Exhibitors will be entitled to a season ticket. 7. Arrangements will be made for the sale of pictures, if desired, and a commission of 15 per cent. will be charged on sales effected. Particulars as to price and sale will be printed in the catalogue. 8. Each picture must be separately framed, and each frame must bear on the back, name of exhibitor, number, and title of picture, and price if offered for sale, corresponding to the particulars on the entry form (Form B). This information must also, for catalogue purposes, be repeated on a label attached by a string, and made to hang over the front of the frame. 9. The form A, announcing intention to send pictures, should be forwarded as soon as possible and not later than Friday, September 1st. The entry form (B) must be sent with, or previous to, exhibits, and received not later than Wednesday, September 27th, addressed to the Secretary, Photographic Salon, 215, Shaftesbury Avenue, W.C. 10. Pictures sent in packing cases, etc., must be delivered, carriage paid, at 215, Shaftesbury Avenue, W.C., not later than Wednesday, September 27th. Frames delivered by hand must be left at the Dudley Gallery, Piccadilly, on Saturday, September 30th, and removed after the exhibition from the same place on Monday, Nov. 13th. 11. The Committee will unpack, repack, and deliver to carriers all exhibits sent in cases, but will not be responsible for damage. Every care will be taken of exhibits. To avoid damage, frames should have no projecting nails. 12. Intending exhibitors are desired to fill up the annexed forms of advice and entry, and to forward the same to the "Secretary of the Organising Committee, Photographic Salon, 1893," 215, Shaftesbury Avenue, London, W.C., in accordance with the instructions noted thereon.

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THE HARRINGAY SOCIETY are shifting their head-quarters to 8, Station Road, Finsbury Park, and have arranged an excellent programme for the summer. On 15th inst. they will hold a conversazione as a sort of house-warming. Admission 6d. Mr. C. W. Hastings will take the chair.

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MR. F. H. DAVIES, the Hon. Secretary of the Talbot Photo. Album Club, has removed to 265, Coventry Road, Birmingham.

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THE MIDLAND CAMERA CLUB propose to hold an exhibition from September 18th to 23rd, at the Moseley Botanical Gardens, Birmingham.

Societies' Meetings.

Eastbourne.—On 31st ult. excursion to Alfriston; over twenty members. Dull afternoon, but otherwise very enjoyable, the drive proving a great success. The Vicar of Alfriston, the Rev. F. W. Beynon, kindly invited the members to tea, which was served on the lawn.

East London (Natural History and Microscopical Society).—The members of the above society, according to their established custom, had their annual outing and "social" on Derby Day, 31st ult., to Epping Forest. Commencing from Theydon Bois, the route selected was through the less frequented northern portion of the Forest near Epping towards Copped Hall, and then southwards to High Beach. Early in the afternoon the party was increased by a contingent from the Hackney Photographic Society. The weather was all that could be desired, and some very interesting "finds" delighted the naturalists, and by the photographic section a good many exposures were made. The "rendezvous" for the "social" was the George Hotel, George Lane, Woodford, where, at 7 p.m., the president of the former society, Mr. W. Smart, and other members of the executive and friends met those who had borne the burden and heat of the day. After ample justice had been done to an excellent and much appreciated tea, to which about thirty sat down, a most pleasant evening was spent. Mr. A. Dean, the indefatigable secretary of the East London Natural History and Microscopical Society, and who is also Curator and Secretary of the Hackney Photographic Society, performed several pieces on the violin, Mr. Drew presiding at the piano. Messrs. Harding, Sparrow, Carrick, Dr. Gerard Smith, Love, and T. Wishart Phillips enlivened the evening with many good songs, Mr. Slight giving an excellent recitation. Mr. Smart took an early opportunity of proposing the health of Mr. Dean, whose inception it is to hold these agreeable gatherings, and whose happy idea it was to combine the Photographic Society in the outing, which tended so much to the pleasure of the day and the success of the evening. In his remarks he referred to the charm of revelling in Nature's beauties, the variety of its teeming life, the necessary but still mysterious dying of all, filling the mind with awe, reverence, and humility. The smallest weed, the most insignificant insect holds a secret no man yet has revealed.

Hackney.—On 30th ult., Mr. E. J. Wall presiding. Referring to Amidol, Mr. Vining said although the negatives were pretty looking, they were not good printers; they suited landscape work better than portraiture. Mr. R. Beckett suggested that he should reduce the exposure and extend the development; he used it every day. That day he had developed twenty-five negatives in thirty minutes, could get any amount of density, and excellent gradation. Mr. Wire showed prints from an Amidol-developed negative taken by flashlight; they had sufficient contrast. The Chairman said it was always best to add Amidol *dry*, otherwise the density-giving power is soon lost. 4 gr. Amidol, ¼ gr. bromide to the ounce, works well. It is specially good for old plates, but he did not believe in the latitude in exposure generally claimed for it. The negatives are not so non-actinic as pyro. Metol is nearer pyro. More control can be had over Metol than any other developer, excepting pyro. It must be dissolved in the order given in the formula printed. A discussion then took place on cloud negatives. Mr. G. Hankins uses a hand-camera, small stops, and rapid exposure. A black glass mirror with isochromatic plate, *f*/32, 1·20th to ¼ sec., cuts off much of the too energetic blue rays by polarisation. If the sky is a brilliant blue, the light yellow screen is an advantage. Mr. Wall generally takes a silver print, and cuts out the sky line as a mask. Mr. S. J. Beckett said clouds reflected in still water gave better results than the originals. Mr. W. L. Barker smoked the plain side of the negative with a wax paper. Mr. W. A. Hensler fully exposes and under-develops. Mr. E. J. Wall spoke highly of Place's shutter, a roller shutter, giving less exposure to the sky. In a batch of views recently taken, only 3 per cent. were without clouds. To develop he uses 1-8th gr. pyro to normal of ammonia and bromide. Mr. W. F. Gosling suns down his skies when dead white, darker at top than at horizon. Dr. Roland Smith always reduces the sky with ferridcyanide of potassium and hypo. However dense it may be, the clouds can always be got out. Mr. S. J. Beckett retards development by bromide applied locally with a brush. At the close of the meeting the presentation of a silver breakfast service was made to the Hon. Treasurer, Mr. J. O. Grant, in recognition of his valuable services to the society.

Harringay.—At the meeting on the 1st inst. it was decided to remove to more commodious premises at Station Road, Finsbury Park. A conversazione will be held on the 15th inst. at the new rooms, tickets sixpence each, which may be obtained from Adams and Co., the Stereoscopic Co., and the Secretary, Mr. C. Frith, 8, Cavendish Road, Harringay.

Lewisham.—On 2nd inst. Mr. E. Eastwood gave a demonstration of "Reduction and Intensification." In the first place he said that it was very little use intensifying an under-exposed plate, as there was no detail that could be brought up, but a flat over-exposed plate could be made into a passable negative by first reducing and then intensifying, to prove which he had exposed several plates for thirty seconds, when two was about the correct exposure; they had been developed as though they were not known to have been over-exposed, the consequence being that they flashed up and looked hopelessly fogged and so dense that hardly any of the subject was visible. He reduced one-half very considerably and then intensified it, resulting in a wonderful difference to the part untouched, and very nearly as good as the properly-exposed plate. The reducer he used was that known as Farmer's, and the intensifier Monckhoven's cyanide of silver, as he found all the negatives intensified with ammonia (except those he had varnished) had all gone wrong, but with the cyanide all had kept perfectly. It is very necessary to thoroughly eliminate the hypo, as it is sure to show in the process of intensification by a nasty brown stain. He found, with some plates, the extra washing during and after intensification caused them to become reticulated all over, more especially in the shadows. He passed round such an one which was utterly spoiled thereby (the plate was one of the very rapid ones, which one of the members stated was made by the "boiling" process). Several members differed with Mr. Eastwood as to the cause of the reticulation, thinking it was due to the mercury solution being too acid; at any rate, whatever the cause, it showed that in the process of manufacture the gelatine had become much too soft.

North Kent.—At the last meeting Mr. S. H. Fry gave a lecture on the Sandell Plates, which was able and lucid and much appreciated by the members.

Oxford University.—A meeting was held on 29th ult. The following were elected officers for next term:—Hon. President, A. McMullen, Balliol (re-elected); Hon. Secretary, Hon. G. L. Parsons, Balliol; Assist.-Secretary, A. H. C. James, Merton. H. E. Cartwright, University, F. J. Varley, Oriel, were elected for the Committee. The result of the Club competition was then announced. The judge considered the work to be of decidedly promising character, and that the entries, though not very numerous, gave good hopes of another successful competition at a future date. He awarded prizes as follows: 1. A. McMullen, Balliol. 2. J. M. S. Walker, B.N.C. The work of H. Graves and the Hon. G. L. Parsons was also highly commended. Mention must also be made of the work of Mr. J. Walker, Ch. Ch., Hon. Treasurer, which was not for competition. Votes of thanks were passed to Mr. J. G. H. Stroud, who judged, and to A. Eglinton, the retiring Hon. Secretary.

Putney. — The members had their second summer outing on the 27th ult. Although the weather looked very gloomy at starting, a good muster of members assembled, and under the leadership of Mr. Faulkner, member of Council, proceeded to Hayes, on the S. E. R., for Hayes and Keston Commons. The weather having brightened, full advantage was taken of the very pretty scenery abounding on these beautiful commons, perhaps more particularly round the lakes at Keston. Good accommodation was provided at the "Fox" Inn. The next outing will take place on Saturday, 10th June, to Burnham Beeches, when Mr. William Martin, jun., Hon. Treasurer, will act as leader.

Tunbridge Wells.—A meeting was held on the 1st inst., Mr. E. R. Ashton in the chair. The prints were on view that had been sent in to the "Holidays with the Camera" Competition, kindly lent by the Editor of the Amateur Photographer, to whom a hearty vote of thanks was accorded, who added increased interest by sending down the Silver Medal awarded to the Chairman, to whom it was handed by the Hon. Secretary. Attention was drawn to the Central Photographic Club, and also to the Convention, the usual monthly literature being circulated. A hearty vote of thanks was accorded Messrs. Perken, Son, and Rayment for the enlargement they had presented to the association from the quarter-plate with which Mr. J. W. Morgan gained the prize for hand-camera work in the Optimus Competition.

West Surrey.—On 31st ult. a series of summer competitions was inaugurated. The usual outings, for various reasons, have proved somewhat of a failure, and the new departure is to remedy this. Due notice of the competitions, which are held monthly from May to September, is published in the *W.S.P.S. Gazette*, and the subject announced. On the evening named, each member is expected to bring a mounted print. These are then numbered and arranged along the table for judgment. The voting takes place in the following manner:—Every member has three votes, which he may distribute as he pleases, provided that he does not give more than one to any single picture. The three prints gaining the highest number of votes are then re-balloted upon, each member now having but one vote. (No member votes for his own picture in either ballot.) The owner of the successful print is awarded a prize in apparatus to the value of 10s. 6d., provided that a copy be presented to the Society's album. Should the winner of one competition again be successful during the same session, he is subjected to the loss of one quarter of his votes on the first occasion, one-third on the second, and so on. The subject for Wednesday evening was "Foliage and Water," and Mr. Jno. S. Bond won the award with a picture by the "Mezzotype" process, of an old Surrey moat with swans. The competition was heartily taken up, and promises to be very popular.

Woolwich Polytechnic.—The annual meeting was held on 29th ult., Mr. C. G. King in the chair. The Secretary's report showed the society to be in a very flourishing condition, a balance of £8 3s. 5d. remaining in hand after paying all expenses to date. The following gentlemen were then elected to office for the ensuing year: President, Mr. A. R. Dresser; Vice-Presidents, Right Hon. Viscount Maitland, Rev. E. J. Doherty; Committee, Messrs. King. Taylor, Daniels, Allen, Brazier, Machin; Hon. Sec. and Treasurer, Mr. W. Dawes (145, Chestnut Road, Plumstead).

SOCIETIES' FIXTURES.

June 8—Dublin (Y.M.C.A.).—Exhibit of Prize Prints.
,, 9—Halifax.—Annual Meeting and Social Evening.
,, 9—Holborn (Camera Club).—Social Evening, an Evening with the Stereoscope.
,, 10—Huddersfield.—Ramble, Colne Bridge to Brighouse.
,, 10—Bristol (Camera Soc.).—Excursion to St. Philip's Church.
,, 10—South London.—Excursion to Belvedere Park.
,, 10—Holborn (Camera Club).—Official Outing to Rickmansworth.
,, 10—West London.—Excursion to Greenwich.
,, 10—Rochester.—Excursion to Boxley.
,, 10—Manchester.—Ramble to Bolton Abbey.
,, 10—Paisley.—Excursion to Falls of Clyde.
,, 10—Rochdale.—Excursion to Lamb Valley and Jumble Clough.
,, 10—Liverpool.—Excursion to Bolton Woods.
,, 10—Oldham.—Excursion to Rossett via Chester.
,, 10—Leytonstone.—Excursion up the River to Battersea Park.
,, 12—Darlington.—"Gel. Chlor. of Silver Paper and its Manipulation," Mr. J. C. S. Mummery.
,, 12—N. Middlesex.—"Dodges," Mr. Gregory.
,, 12—Birmingham.—Whole-day excursion to Dovedale.
,, 13—East London.—"The Carbon Process," by Mr. E. Tylee.
,, 13—Birmingham.—Social Evening,
,, 13—Oldham.— Ramble to Ashbury for Belle Vue.
,, 13—P. S. G. B.—A paper will be read by Mr. W. Taylor, of Leicester on "The Construction of Interchangeable Lens-Screw Fittings;" and Dr. C. P. Goerz, of Berlin, will read a paper upon and exhibit a new Anastigmatic Lens.
June 14—Birmingham.—(Photographers' Union), "Stereoscopic Photography," by Mr. A. Twigg.
,, 14—Photographic Club.—Members' Open Night.
,, 14—Croydon. (Camera Club).—Excursion to Weybridge.
,, 15—Newcastle-on-Tyne.—Out-door meeting. Ripon and Fountains Abbey.
,, 15—Aston.—Paper by Mr. Delicate.
,, 15—Harringay.—Social Evening.
,, 15—Northamptonshire.—Excursion to Turvey.
,, 16—Holborn.—Mr. S. H. Fry on "The Sandell Plate."
,, 16—Bristol.—Excursion to Henbury.
,, 16—Photographic Club.—Excursion to Otford.
,, 16—Manchester.—Ramble to Gawsworth and Marton.
,, 16—Lewisham.—Outing to Wanstead Park. Leader, Mr. Churchill.
,, 16—Liverpool.—Excursion to Windermere.

Catalogues.

J. Lancaster and Son, Colmore Row, Birmingham. Price 4d.

A well-gotten up catalogue of eighty pages, with illustrations of work done with their cameras and containing many useful and taking novelties for the current season.

* * *

Metol-Hauff.—Instructions for the preparation of a concentrated developing solution: Dissolve in the first place ¾ oz. of metol completely in 35 oz. of water, and afterwards add 4½ oz. of sodium sulphite, pure cryst., 3⅛ oz. carbonate of potash, chemically pure, ⅘ oz. of a 10 per cent. solution of bromide of potassium. In well closed bottles this solution keeps for a very long time. For studio work, one part of this solution is diluted with two or three parts of water. For landscapes, one part of the above solution is diluted with three to five parts of water. A more concentrated developer than given in the above directions is not advisable. It is recommended that the attention of amateurs and others should be drawn to the fact that, when using this developer, shorter exposures than hitherto should be given, but that it is necessary to develop pretty strongly, as the negative loses density in the fixing bath. Wholesale of Metol-Hauff from Fuerst Bros., 17, Philpot Lane, London, E.C., sole agents for Great Britain and colonies.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer Questions by post.

QUERIES.

6103. **Norfolk Broads.**—Any information as to scenery round the Broads suitable for photography, where to stop where plates can be had, etc., will greatly oblige?—C. Briggs.

6104. **Toning.**—Can you help me concerning my combined toning and fixing bath? It is an alum and hypo bath, and in the directions I am told to let it stand twenty-four hours, and decant the clear liquid. But half the solution only is clear after three days' standing. Is all the sediment useless?—W. H. Langton.

6105. **Thiotone.**—Would some reader kindly let me know how to get and how to use the new toning bath called Thiotone, and whether it can be used with Eastman's Solio?—W. H. Langton.

6106. **Prestanty.**—Has any brother amateur stayed here? Are lodgings cheap, and are there any good views to be had? All information gladly received.—S.

6107. **Bubble Marks on Prints.**—I find that when I squeegee prints on to glass to give them a gloss, bubbles form between the glass and the face of the print, and when dry leave marks. I shake off all superfluous water before laying the prints on the glass. Can any one tell me how to avoid the bubbles?—Belinda.

6108 **Pyrenees.**—Can any one inform me what are the best points for photographic touring in the Pyrenees? Being so near the Spanish frontier, is there any likelihood of interference on the part of the gendarmerie, and is amateur photography permitted on the Spanish side?—Argentum.

ANSWERS.

6093. **Lake District.**—"Trix" will find some pretty pictures around Windermere. There is the old mill, Ambleside Church, Stockgill Force, Newby Bridge; also Waterhead from the Pier. "Trix" can also take the coach from Ambleside to Coniston, thence to Furness, where he can get some good photographs of the Abbey; fare, 5s. 6d. return. Hotels are, Queen's, Ambleside; also the Salutation; both belong to one person. The White Lion, Waterhead Hotel, faces the Lake. Bell's Temperance Hotel, close to the Pier, Bowness, is the best to go for plates.—W. B. Smith.

6096. **Durham Cathedral.**—I cannot do better than quote the "Amateur Photographer's Annual," namely: "The castle and cathedral will be found of great interest. The interior of the latter may be photographed, without permission, between the hours of 1 and 4 p.m. At other times permission will have to be obtained from the Dean. The interior is dark in June; good negatives were obtained on Castle plates with stop *f*/11, with twelve minutes' exposure. In the Jubilee Chapel five minutes only was given; plates should be backed."—D. H. W. Preedy.

6098. **Cromer and Sherringham.**—I don't think that "Enrobsig" will find much to do in Cromer itself, but the surrounding country is pretty. Cromer Church must be taken; the latter part of the day is most advisable. Beach scenes and views along the sea-front, and a lighthouse are other points for the camera. If "Enrohsig" is fond of churches which are ancient, his wish may be gratified by going to Felbrigg, Gresham, Hanworth, Melton, Overstrand, Mundesley, Sherringham, West Runton, Knapton, Roughton, Trunch, Aylmerton, and Trimingham. A trip must be made to Gunton, at which place there is a three-hundred-years'-old oak tree. Felbrigg and Sherringham can boast of parks and halls. Roughton Windmill, Wroxham Broad, with its yachting pictures, and Northrepps Cottage must not be forgotten. Beeston Abbey, Bacton Priory, and Beckham Church, which are ruins, are well worth a visit. T. Mack has a dark-room available.—D. H. W. Preedy.

6099. **Scarborough.**—"G. B." will be able to spend a nice day at Scarborough. There is the Spa, Aquarium, Sands, the Castle, Scawby Mills, Old Church, gardens near the station. Dark rooms at W. Parker's, 95, Westborough, and Ramshill Road, close to the station; the other at J. Whitefield, 113, Westborough. But I prefer the first. I think it is free. The others charge, I think, 6d. You can get plates at either places. The former may help you. Scarborough is a nice place, and "G. B." will find plenty to do in and about it.—H. B. Smith.

6100. **Ilfracombe.**—Should certainly advise "Trix" to visit Ilfracombe, but, if possible, not during August, as it is rather overdone by trippers from Cardiff, Swansea, etc. Cannot recommend as to hotels: Lee, Lynmouth, and Clovelly are well worth visiting. At Lee be sure and pass through the village to the sea-shore. Watermouth Caves, about 2½ miles from Ilfracombe, are worth taking. Lee is only about 2 miles, but Lynmouth and Clovelly too far for walking. Plates, etc., can be got at Catford's, High Street; also a dark-room. The scenery all round Ilfracombe is so very fine that a fortnight's photographic holiday may be well spent there.—C. Briggs.

6099. **Scarborough.**—"The Queen of the Northern Watering Places," as Scarborough is called, is, in most respects (I don't think for photography) worthy of its name. The old portion of the town is built at the foot of a hill facing a beautiful bay, which by some has been compared to the Bay of Naples. The walks and drives around the neighbourhood are many and various. Of the former, that by the side of Oliver's Mount and the Mere, to the west of the town, is a very pleasant ramble, and from the top of Oliver's Mount a complete panorama of the whole town and neighbourhood can be seen. The old castle to the east, and a good view from the Castle Hill will, I am sure, fully repay a visit. Of the drives, one through Forge Valley and Hackness, is hardly able to be beaten by any other place for its beauty. W. Parkes, 96, Westborough, keeps a dark-room.—D. H. W. PREEDY.

6101. **Grimsby and Cleethorpes.**—Cleethorpes, two and a half miles distant from Grimsby, is a remarkably pleasant and salubrious place on the north-east coast of Lincolnshire. At Clee, the parent village of Cleethorpes, one mile distant, is a fine old church, the tower of which is said to be of pure Saxon, and the other parts of Norman architecture. This church, from an ancient date on the pillar, seems to have been consecrated by Hugh, a noted Bishop of Lincoln, in 1192. A pleasant walk on the sea bank is to Tetney Lock. It is a pity that "G. B." cannot spare or be spared more time as there is, twelve miles from Grimsby, a most magnificent pile of ruins called Thornton Abbey. The seat of the Earl of Yarborough, Brocklesby Park, about nine miles distant, will well repay the trouble of a visit. Steamers leave Grimsby Docks for Hull and Burton—Stather-on-the-Trent. It must not be forgotten that all the host of steamers, etc., going to and coming from Hull and Grimsby pass by Cleethorpes. W. Brampton, Oliver Street Studio, has a dark-room.

QUERIES UNANSWERED.

May 5.—Nos 6065, 6066, 6067, 6068.
,, 12.—Nos. 6071. 6072, 6073, 6075, 6076.
,, 19.—Nos. 6077, 6078, 6081, 6082, 6084, 6085, 6086.
,, 26.—Nos. 6088, 6089, 6091, 6094, 6095.
June 2.—Nos. 6097, 6102.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

CHARON.—(1) Just a trifle flat; if printed on matt chloride paper you would probably have a better result. (2) Good, although it could be improved by painting over the back of the negative over the foliage seen through the arch, and thus give more an idea of distance and throw the foreground up better. (3) Far too patchy; that is the lights are scattered and the eye wanders all over seeking rest and finding none. (4) We object to this, if you had such a brilliant sky you would not have got such blackness in the foreground, we should be inclined to mask the landscape and allow the sky to print out more. Nos. 1 and 2 are up to competition standard of Class II.

F. J. THORNTON.—This is rather a difficult matter, but if we wanted to make such a thing we should use an ordinary matt varnish and add rather a large proportion of castor oil about 10 per cent. with either alkanet root or else a spirit soluble aniline dye dissolved in it. We do not happen to have any such formula by us.

T. M.—Print accidentally omitted, placed in Class II.

E. R. ROWNEY.—(1) Use medium isochromatic plates with a pale yellow tint screen, stop *f*/22 and shutter about $\frac{1}{20}$ sec. If you stop your lens down to *f*/32 and use about $\frac{1}{30}$ sec. there is no reason why you could not take the rising sun, that is of course if you rise in time. only of course it means getting up early. Always include some horizon. (2) Use the rapid plates you name, and the largest stop that will give you satisfactory definition, about *f*/16, we should think—and shutter not quicker than $\frac{1}{20}$ sec.

R. MALDEN. — Thomas' special landscape and Wratten's ordinary are both the same rapidity and just what you want we think. We are glad to find that you like slow plates.

TYRO.—(1) Add some ordinary chalk or magnesium carbonate to the solution of chloride of gold and only just sufficient will be used to neutralise any acid and the rest may be filtered out or decanted, but we do not think any slight excess would do any harm in the bath. (2) See answer to "E. R. Rowney's" query as to cloud work. Use Amidol or metol as developer and keep your negatives rather thin.

M. H.—What we meant was that different developing agents require different considerations. Although the proportion between meta and sulphite for pyro may be 4 : 1, yet an acid has far greater influence on the developer with metol than with pyro, therefore we should only use equal parts of meta and metol, personally we think the sulphite far preferable. With regard to your washers can you not lead the water by indiarubber pipes so that it enters in a good stream by the bottom of the tank? *Re* suggestions, for which many thanks, we have now another edition in hand and had determined on adding the letters at top of page. We are always pleased to see "country cousins" any time and any day except Tuesday, when we see no one at all.

GLOBE.—Your print is spoilt we think by printing in the sun, but the colour is rather pleasing. The stains look rather like finger marks.

R. H. MICHIE.—Shall be pleased to have notes as you suggest.

GEO. W. BLACKWELL.—Print overlooked; was in the first ranks.

G. W.—We cannot possibly give you the *f*/*x* numbers unless you send us the lens up; but why not write to the makers?

BARFIELD.—We see no reason why you should be debarred from any competition under the circumstances named.

ENQUIRER.—The explanation is comparatively simple. The duplicated figures are not astral or spiritual bodies but are due to the reflex images formed by internal reflection from the lens surfaces, and if you hold your lens at arm's length against a gas or candle flame you will see practically the same thing in the lens.

SQUIRE.—(1) The only thing you can do to your negative is to soak in—

Bichromate of potash	10 gr.
Bromide of potash	40 ,,
Water	2 oz.

for five minutes then add about five drops of strong nitric acid to the above and reapply to plate. As soon as the image is bleached, wash thoroughly and redevelop with ferrous oxalate or a pyro and ammonia developer with plenty of sulphite and bromide. Only continue development till the shadows, in your case the trees on the left and the foreground, are developed through then refix and wash, this will improve the result. (2) If you use the caramel and sienna backing recommended in this column during the past weeks you will find a great improvement. (3) Only the long exposure, which seems extraordinary for this time of the year.

MISS BROUGHTON.—We should say that No. 1 negative was much under-exposed and forced in development which has caused dichroic fog. (2) Very much under-exposed. (3) Under-exposed and under-developed.

A. BARTON KENT.—We are very sorry but cannot find room for your excellent verses.

H. S.—(1) We would feel inclined to cut just a little off the foreground of this, and print in some good clouds and use rough surface paper and then you would have a very good thing. (2) Fair. (3) Good (4) Try rough paper, and tone your sky down a little. (5) Fair. (6) Ditto. (7) Over-printed; you have lost all idea of sunshine. (8) Good. (9) Wants clouds. (10) Printed a little too deep and the trees on left should be a little lighter. (11) Wants trimming down badly. (12) Too much foreground. (13) Sky wants toning down or clouds. (14) Too black on left, unpleasant tone, and the trees in the front are too obtrusive. (15 and 16) Both insufficiently toned and the latter wants clouds. If you tone till on looking through the prints all redness has disappeared from the shadows you will not find any trouble with red tones. It is not necessary to always use a yellow screen for clouds though the best work is undoubtedly done with a screen. Try Gotz, 19, Buckingham Street, Strand, for one. Price about 4s. 3 square inches.

EOS.—(*a*) Very good. (*b*) Ditto. (*c*) Over-printed. (*d*) Spoilt by the yellow tinge. (*e*) Very good. (*f*) Poor; the negative is somewhat under-exposed, and too harsh in contrast, and suffers from halation. *a*, *b*, and *e* are certainly up to competition standard, and if printed on rough paper ought to stand a good chance. For cardboard struts try Percy Lund and Co., Memorial Hall, Farringdon Street, E.C.

W. H. R. B.—(1) The sulpho bath should be distinctly alkaline, if acid it is liable to cause yellowness of the whites. (2) Alkaline chrome alum is better than ordinary alum, or better still aluminium sulphate or chloride. (3) The backing papers are not likely to cause fading. (4) Yes, to every pint of fixing bath add ¼ oz. of carbonate of soda.

G. S H.—Letter by post.

S. G. L.—We should choose A. Both lenses are, we believe, the same. There would be no difficulty in covering the camera with leather, and if you write to Park, of Station Buildings, Kingsland, or Platt and Witte, Birkbeck Road, Kingsland, they would send you samples and prices of various kinds. Ordinary glue is the one usually used, or you can use Prout's elastic glue, or dilute ordinary glue slightly and add 5 per cent. of 10 per cent. solution of bichromate of potash, which makes it adhere better.

TRAVEL.—We do not think it at all likely that you would be able to hire a half-plate hand-camera, there are so few made. The only likely places are Sands and Hunter, Cranbourn Street, W., and the City Sale and Exchange Rooms, 53, Lime Street, E.C. These latter make a speciality of hiring any make of any kind of apparatus, but the price would not include films, these would be extra.

T. HEADWORTH.—Photography is not allowed in any public park or open space on Sundays, therefore not in Epping Forest.

SUBSCRIBER.—Yes, it is preferable to use the acid fixing bath for metol-developed negatives:—

Hyposulphite	4 oz.
Theonine	½ ,,
Water	20 ,,

Theonine is acid sulphite of soda, and may be had from Marion and Co., Soho Square, or you may use the following:—

Sodium sulphite	2 oz.
Sulphuric acid	1 dram.
Water	6 oz.

Dissolve and add to every pint of fixing solution.

TRIPOD.—The only thing you can do is to write to the police at Marylebone Police Court and see whether they can do anything for you, or else employ a solicitor.

W. B.—Your spots and streaks may be caused by not washing your negatives thoroughly before bleaching, or by not washing thoroughly after bleaching. Try fixing your negatives again, well wash for some hours, and then treat with acid and alum clearing bath, wash again, well re-bleach, wash well, and use a ferrous oxalate developer to blacken.

SIGMA.—There is not the slightest doubt that the metallic spots you complain of are silver stains from the paper used in printing. We insert your letter, however.

ZETA.—As both the changing boxes are practically identical, and both have the same carrying capacity and work well, you must use your own judgment.

VIBGYOR.—(1) Insufficiently printed and toned; it is impossible to get any better definition on horizon. (2) Is under-printed and over-toned, but we should not like to express an opinion as to the dull line without seeing negative. (3) Looks as though your film had not lain quite flat in the printing frame, as parts are fuzzy and indistinct.

F. PARTRIDGE. — Use the metol exactly as you would pyro, add the accelerator gradually. Exposures should not be shorter than with pyro. Dilute the ordinary developer with four times the quantity of water for long exposure on Sandell plate. For bromide paper it may be used half-strength, with the addition of ½ grain of bromide to the ounce. Metol is preferable to pyro and soda, both for snapshot work and portraiture.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence****, Every additional* ***three*** *words,* ***one penny****. The name and address of the sender* ***must be paid for****. (A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one word****; compound words count as* ***two words****.)*

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PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of* 3d. *to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, *1, Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR' AMATEUR PHOTOGRAPHER, *1, Creed Lane, London E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.****, or a commission of* ***2½ per cent.****, upon the sale price of the apparatus.*

Bicycles, etc.—Bicycle. genuine Ivel safety, cost £15 15s., ball bearings, hollow rims, solid tyres, in first class condition, lamp, bell, all accessories, cash £5 10s., or half-plate camera with other photographic utensils.—Barnard, Chemist, Columbia Road, London, E.

Premier Safety, 1892. Condition as good as new, cushion tyres, balls all over, diamond. price £9 or what offers?—W. Ross, 2, Creed Lane, E.C.

Cameras, etc. — Has anyone an old half-plate camera without lens, any make, must be cheap.—E. W., 288, Seven Sisters Road, London, N.

Half-plate modern portable camera, reversing back, swing back, double extension, rack and pinion focussing, and all latest movements, with double book-form slide, double-hinged shutters, as new, £2.—G., 1, Inkerman Street, Blackburn.

Cameras, Lenses, etc.—Lancaster's half-plate camera, with Ross Universal symmetrical lens, iris, two dark slides, instantaneous shutter, new four months ago and in perfect condition, £2 10s.—Herbert Graham, 15, Stratford Terrace, Shakespeare Street, Nottingham.

Perken, Son, and Rayment's 7½ by 5 Rayment camera with 8 by 5 euryscope lens, perfectly new, cost £15, £8 10s.—Stevens, 88, Balcombe Street, London, N.W

For sale, whole-plate camera, Lancaster's three slides and splendid rectilinear lens. Prize work done with it. Price £7.—No. 410, office of this paper, 1, Creed Lane, London, E.C.

Dark Slides.—10 by 8 double back, quite new, double hinged shutters, spring fasteners, 15s. approval. —Chapman, 226, Warde Street, Manchester.

Hand-cameras, etc.—Kodak No. 3 Junior with leather case, takes sixty films, also dry plate attachment for above, and three double dark slides with leather case, new this season, cost £10 10s., price £7 10s.—Railton, Forge Mills, Caton, near Lancaster.

Griffiths' Guinea camera complete, quite new, 14s.—F. Lea, Portland Road, Birmingham.

Samuel's quarter-plate detective, takes 12 plates, cost 50s., will take 25s.; also Stirn's detective, takes six round pictures on one plate, cost 25s., will take 12s. 6d.; both in good condition.—Parker, Chemist, Scarborough.

Luzo, perfect hand-camera (time and instantaneous), fixed or variable focus, roll holder, cost £10 10s., will take £5 10s.—Address, No. 411, office of this paper.

No. 3 Kodak, splendid condition, 40 films, £5 10s., or exchange half-plate set.—Swales, 7, Haxby Road, York.

Lenses, etc.—Whole-plate rapid rectilinear lens, covers 9 by 7, 10¼ in. focus, very fine lens, best condition 31s., on approval, deposit.—E. D., 19, Ladbroke Grove Road, London.

Lancaster's half-plate Instantograph lens and shutter, 18s.—Medhurst, 30, Dunlace Road, Lower Clapton.

Large portrait, also half-plate achromatic lens, fine definition, both in excellent condition, 21s.—S. W. Perrott, 39, Marlborough Road, Dublin.

8 by 5 instantaneous rectilinear lens by Rouch, quite new, £2.—Stevens, 88, Balcombe Street, London, N.W.

No. 1B Dallmeyer lens, fine condition, with case of stops, cost £6 5s., £2 17s. 6d. cash.—Bensley, 20, Oxendon Street, London, S.W.

Very fine 7 by 5 rapid rectilinear lens, iris diaphragms, grand definition, 8in. focus, as new, approval, deposit, 28s. Address, Iris, 121, Shirland Road, London, W.

Negatives, etc.—Thirty-three negatives "Animals at the Zoo," 33s.; nineteen "Bank Holiday on Hampstead Heath," 20s.; fourteen various London views 14s., all quarter-plates, suitable for making lantern slides, £3 the lot.—John Stabb, 154, Queen's Road, Bayswater.

Shutters.—Quarter and half plate instantaneous shutters, 4s. 6d. each.—50, Upper Berkeley Street.

Sets.—Watson's half-plate tourist camera with three double backs, Thornton Pickard shutter, four-fold stand fitting into same canvas case. All in perfect condition, cost £10 14s., sell for £5 10s. — Gent, Misterton, Gainsboro'.

Half-plate camera, 19 in. extension, double front, reversing back, three slides, tripod and case, £2 10s. or with splendid 8 by 5 R.R. lens and time and instantaneous shutter, £5. All equal to new. Approval.—Richardson, 8, Summerhall Square, Edinburgh.

Half-plate camera, Lancaster's International, two double slides, R.R. lens, tripod, printing frames, dishes, and burnisher, £4 will buy the lot, a bargain. —James Horridge, 1, Crumpsall Vale, Delawnay's Road, Blackley, Manchester.

Square bellows, quarter-plate camera, tripod, rectilinear lens, shutter, two slides, developing dishes. Take 50s. or best offer.—E. W. Butler, 42, Pownall Road, Fulham.

Complete outfit, quarter 1892 Lancaster's special Instantograph camera, lens tripod, four double slides, stiff case, lamp, dishes, etc., 50s.; quarter-plate portrait lens, new, 15s.; camera for ditto with reversing back, fits Lancaster slides, 5s.; two superior backgrounds on rollers 8s., pair of stereo lenses, new, 6s.; whole-plate landscape lens, revolving diaphragms, 10s.; cabinet burnisher 3s.—L. Miskin 162, York Road, S.E.

Lancaster's 12 by 10 International camera, complete with stand, tripod, and lens, one double slide, precisely as sent out and listed by Lancaster, with one double carrier each for whole and half plate, all new, cost £12, will take £9 10s.—Parker, Chemist, Scarborough.

Sundries.—AMATEUR PHOTOGRAPHER, vol. 2 bound, and 14, 15, 16 unbound, all in good condition, price 2s. per vol.—Winter, St. James's Road, Kingston-on-Thames.

Bargains. Studio accessories. Enlarging apparatus 30s.; Studio stand, 5s.; dozen quarter-plate negatives boxes, 7s.; three backgrounds, 2s. 6d. each; chair, 7s.; copying camera, 2s.; vignetting portable backgrounds, 3s.; cameo press c.d.v., 5s.; cabinet photo press, 2s. 6d.; ditto c.d.v., 2s.; half-plate tripod, 3s.—Hazell, Photographer, Clevedon, Somerset.

"Enamelling and Retouching" (Piquepe), "Photography" (Hepworth), "Amateur Photographer" (Lancaster), ditto (Vevers). "Ferrotype" (Heighway), three shillings the set.—George J. Battle, 89, Derby Road, Northampton.

"Photography Annual" cloth, 1891, offers; "Photography" vols. 1891, 1892, 2s. each; best 5 by 4 and quarter printing-frames, 3d.—Percy Bradshaw, Ramsgate.

Tripod.—Walking-stick stand, 7s. 6d. (quarter cost). —H. Cheshire, 9, Great Tower Street, E.C.

Ashford's tripod, unused, cost 25s., sell 17s. 6d.—Short, Perryn Road, Acton.

WANTED.

Case.—Stiff lined camera case for half-plate Instantograph and four slides, etc., long shape.—J.M., The Ferns, Pellatt Grove, Wood Green, N.

Dark Slides.—Wanted, 5 by 4 double backs, good make Hunter-Sands preferred, exchange good lens.—Hazley, Blackrock, Dublin.

Hand-cameras, etc.—Wanted, Ideal or Frena hand-camera. Approval, deposit.—M. Butler, 5, N. Common Road, Ealing, W.

Wanted immediately, Ideal hand-camera, 1893.—T. Watson, Lodgs, Lythe, Whitby.

Lenses, etc.—Wanted, 7½ by 5 R.R. lens, good maker, perfect; also Adams' quarter aluminium shutter.—Percy Bradshaw, Ramsgate.

Optimus 5 by 5 in. portable symmetrical. — 3, Walpole Street, Wolverhampton.

Sets.—Half-plate camera, lens, tripod, and case, perfect condition, Thornton-Pickard preferred, send full particulars to—R. White, 37, Ann Street, Llanelly.

Sundries.—Double dark slides wanted half-plate Lancaster's special instantograph; also good tripod stand, Adams' Lightning or similar.—Westworth Lowe Street Printing Works, St. Helens, Lancashire.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bijou Enlarging Lantern.—Patent rectangular or square condensers used by Van der Weyde and other eminent photographers, reduces size nearly half; portable, unique, scientifically constructed, beautifully made, and optically correct.

Bijou Enlarging Lantern is the only perfect enlarger, high-class lenses and workmanship.

Bijou Enlarging Lantern, new design, take negatives all sizes, gives uniform illumination. Every amateur and photographer should possess one. Gives universal satisfaction. Enthusiastic testimony everywhere. Prices with or without objectives sent on application. Cheapest and best. Hughes, Brewster House, Mortimer Road, Kingsland, London, N. Before purchasing any lantern get our grandly illustrated Catalogue, a surprise when seen; over 180 choice wood-blocks of the finest and cheapest instruments extant, 6d., postage 3d.

Bargains in Cameras and Sets.—Whole-plate finest Spanish mahogany camera, square leather bellows, rising and cross front, swing and reversing back, back extension, fitted Laverne's rapid rectilinear lens, Sergeant's patent time and instantaneous shutter, three double book-form slides, canvas case, stand, etc., £7 17s. 6d.; Underwood's whole-plate Exhibition camera, double extension, leather bellows, rising and cross front, wide-angle movement, fitted two double dark slides with carriers, Underwood's R.R. lens, iris stops, instantaneous shutter, finder, turntable, four-fold stand, and waterproof canvas case, £8 5s.; Underwood's whole-plate Field camera, double extension, leather bellows, rising front, reversing and swing back, wide-angle movement, width when closed 2 in., fitted very fine rapid rectilinear lens, iris stops, double book-form slide, folding stand, and canvas case, £7 5s; half-plate Spanish mahogany camera by Mallett, double extension, rising front, swing and reversing back, three double book form slides, fitted rapid rectilinear lens by Laverne, Waterhouse stops, two-fold stand and case, real bargain; half-plate Spanish mahogany camera by Middlemiss, double extension, best leather bellows, rising and cross front, reversing and swing back, front and back extension for wide-angle pictures, fitted three double slides, Leviathan rapid rectilinear lens, iris stops, works *f*/8, three-fold sliding tripod and case, as new, £6 5s., worth double; half-plate Optimus rapidograph camera, double extension, best leather bellows, reversing and swing back, rising and falling front, fitted three best double book-form slides, metal divisions, clips and catches, Laverne's best aluminium rapid rectilinear lens, iris stops, works *f*/8, three-fold ash tripod and case, warranted as new, £1 17s. 6d.; Lancaster's quarter-plate special brass-bound Instantograph, double extension leather bellows, swing back, etc., three Tylar's medal and one mahogany dark slides, fitted Lancaster lens, iris stops, and see-saw shutter, and folding stand, £2 5s.; quarter-plate Spanish mahogany by Lawley, square leather bellows, double extension, rising and cross front, swing and reversing back, three double book-form slides, fitted rapid rectilinear lens by Laverne, Waterhouse stops, folding stand, and solid leather case, £1 17s. 6d. All above sets guaranteed as described in every detail. On view, City Sale and Exchange, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Hand Cameras.—Adams' No. 2 Ideal, fitted Wray's rapid rectilinear lens, time and instantaneous shutter, adjustable focus, two finders, carries twelve quarter-plates, covered morocco leather, finest condition, £7 5s.; Houghton's Shuttle hand-camera, fitted rapid rectilinear lens, time and instantaneous shutter, two finders, adjustable focus, carries twelve quarter-plates, covered morocco leather, as new £5 5s.; London Stereoscopic Company's twin-lens Artist hand-camera, fitted Black Band lenses, Waterhouse stops, works *f*/6, adjustable focus, full-size finder, three double dark slides, in solid leather case, £11 5s.; No. 2 Kodak, fitted R.R. lens, time and instantaneous shutter, finder, carries 100 films, covered leather, in solid leather case, £3 17s. 6d.; B. Daylight Kodak, fitted R.R. lens, time and instantaneous shutter, finder, carries 24 films, covered leather, in solid leather sling case, £2 12s. 6d.; Watson's 5 by 4 hand-camera, Watson's rapid rectilinear lens, iris stops, roller blind, time and instantaneous shutter, adjustable focus, four double slides, two finders, covered real leather, finest condition, £5 17s. 6d.; Radial hand-camera, by Marion, fitted "Soho" lens, carries twelve quarter-plates, shutter, two finders, focusser, etc., in leather case, £5 17s. 6d.; Ariel hand-camera, leather bellows, fitted Wray's 5 in. R.R. lens, rotating stops, Thornton-Pickard shutter, three double book-form slides, finder, complete in case, as new, £5 10s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Whole-plate Ross's rapid symmetrical lens, fitted Waterhouse stops, grand definition, covers well, focus 10½ in., good condition, £4 15s.; Optimus 3B quick-acting portrait lens, fitted Waterhouse stops, works *f*/4, focus 10 in., diameter of lens 3½ in., condition as new, £7 12s. 6d.; 8 by 5 Grubb aplanatic doublet lens, fitted Waterhouse stops, works *f*/8, best condition, £3 15s.; Blackfriars Sensitising Co. 7 by 5 wide-angle rapid rectilinear, rotating stops, works *f*/11, best condition, 37s. 6d.; 7 by 5 rapid rectilinear lens, by Laverne, works *f*/8, movable hood, grand definition, covers well, as new, 27s. 6d.; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s.; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works *f*/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s.; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works *f*/8, movable hood, as new, 45s.; 5 by 4 Dallmeyer wide-angle landscape lens rotating (1A patent), rotating stops, grand definition, 50s.; Laverne ¼ wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B), Waterhouse stop, rack focussing, condition as new, £3 17s. 6d., cost £6 5s. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

ENLARGING APPARATUS, quarter-plate, 5in. condenser, 51s. 6d.; half-plate, 8in. condenser, 102s. 6d., without objective, in packing case.—Wm. Hume, 1, West College Street, Edinburgh.

ENLARGING APPARATUS, new design, 4in. Cantilever, takes in professional negatives up to 15 by 12, and for amateurs it covers most snap-shot work. —Hume, 1, West College Street, Edinburgh.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

IMPORTANT NOTICE TO AMATEURS.—Developing, Printing in any process, Retouching, Bromide Enlarging and Finishing, etc., executed with the *utmost promptitude*, and the very best results obtained. Work called for (if in London) on receipt of card. New Price List now ready. Only address:—WILFRED EMERY 24, SOUTH STREET, BAKER STREET, W.

The Amateur Photographer

Telephone No. 1645
Telegraphic Address: VINEY, LONDON

Offices . 1, Creed Lane, Ludgate Hill, London, E.C

No. 454. Vol. XVII.] FRIDAY, JUNE 16, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 till 5 o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from 10 till 1 o'clock.

Our Views.—"Photography at Home" Competition—Prize Album—A Developing Hint—A New Glass—Conference of Judges—The Convention—The *Building News* and Old Masters—A New Standard Dictionary—The Press Camera Club—An Egyptian Camera—Sun Pictures of the Ancients—S. London Phot. Soc.—Printing-out Bromide Paper—The *Studio.*

Flotsam and Jetsam.—By Anchorite.

Stereoscopic Competition.

Letters.—A Society for Holloway (Member)—Photography in Epping Forest (Alfieri)—Mr. Ives and Photo Engraving (Dallas)—A Printer's Error (Anderson)—Dark-Room at Berlin (Burrows)—A Warning (Preedy)—Amidol-Hauff (Dresser)—Central Photo Club (Jones).

Articles.—The Elements of Photo-Micrography (Mikron)—Practical Hints on Obtaining Pictures (Hinton)—Photographic Procedure (Wall).—Angle of View (Everitt).

Holiday Resorts.—Switzerland.

Apparatus.—Ilford Exposure Meter—Bothwell Camera Clamp—Wynne's Exposure Meter.

Societies' Fixtures.

Societies' Meetings.—Birmingham—Brixton and Clapham—Leicester—N. London—Nottingham—Sheffield—S. London—Staffordshire—Tooting.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

TERMS OF SUBSCRIPTION—

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TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements* (*at the charge of Three Words for One Penny*) *must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Print Competition, No. 49, Figure Study.—Latest day, June 19th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, June 30th, 1893.)

We would particularly draw the attention of our readers to our "Photography at Home" Competition, which closes on 30th inst. Forms giving full particulars will be sent post free on receipt of stamped addressed envelope. The competition is intended to include portraiture, figure studies, lawn tennis parties, etc., the main idea being that this should be essentially work done at or near home, in opposition to our "Holidays with the Camera" competition, which should be work done whilst on tour or in the holidays.

◆

The album of Prize Pictures of last year's monthly competitions, which was subscribed by many competitors, has been issued, and has been received with such encouraging and flattering remarks that we have determined to issue another album, if sufficiently subscribed at the close of this year.

◆

We may state that the Prize Pictures, twenty-six in all, were reproduced on india-tint, plate-marked mounts by a permanent photo-mechanical process, and were accompanied with descriptive letterpress and criticisms, the whole being enclosed in a handsome cloth-covered portfolio.

◆

We have received a letter from Mr. John Howson, of the Britannia Works Company, Ilford, in which he strongly dissents from a paragraph in Mr. R. Child Bayley's article in our last issue, p. 385, in which he recommends the addition of an acid to a solution of pyro, and not *vice versa.* In *Photographic Scraps* for May, p. 189, we find the following:

> "Another Developing Hint.—In making up the Ilford developing formula, take care to mix the acid with water *before adding the pyro.* There are two good reasons for this. First, the solution *will keep for more than double the time*, and, secondly, we avoid the risk of wasting the pyro, if by accident we have added too many drops of the acid."

We must confess that we have always held that any preservative, whether an acid or sulphite, should always be mixed with the water first, and then the pyro added, and further we have always recommended this procedure, and were under the impression that it was generally adopted. In cases when ordinary water is used and a bottle of pyro is not freshly opened to make the stock solution, a distinct and sometimes deep-coloured solution is formed by dissolving the pyro and then adding an acid, whereas the reverse way a colourless solution is obtained.

◆

It is stated that a new glass has been made in Germany, a plate of which, one third of an inch thick, allowed only 11 or 12 per cent. of the calorific rays to pass. The composition is stated to be 70 parts of sand, 25 of china clay, and 34 of soda. This will be of interest to all those lanternists who have a happy knack of cracking condensers.

THE conference of judges of exhibitions, which, as previously announced in our columns, has been summoned by the P. S. G. B., will take place at 50, Great Russell Street, W.C., on Tuesday, 20th inst., at 7 p.m.

◆

THE following papers, additional to those announced in our last, will be read at the Convention:—

"Our Pictorial Failures," Rev. F. C. Lambert, M.A.
"Latitude in Exposure, and Speed of Plates," Dr. F. Hurter.

◆

THE *Building News* is now issuing a weekly illustrated supplement in the shape of a reproduction of an old master from the National Gallery, accompanied by a note by Mr. Chas. L. Eastlake, the keeper and secretary of the National Gallery. These illustrations are of course produced from negatives or prints, and are well worth having. The first appeared in the issue for May 26th.

◆

FUNK AND WAGNALLS COMPANY, of 18 and 20, Astor Place, New York, U.S.A., have in preparation "A Standard Dictionary of the English Language," of which we have received advance proofs, and from a perusal of the same we should say it will be the most complete work of its kind ever issued. It is copiously illustrated, and in some cases with very fine chromo lithographs.

◆

THE especial point, however, which has interest to photographers is that outline reproductions are given from Muybridge's photographs of the regular progressive movements of the horse and dog, the definitions of the words being also by Muybridge.

◆

WE note that chemistry and bacteriology, astronomy, physics, besides many other sciences, have been allotted to special editors, but of photography there is no mention, though of course this may be included in the kindred or general scientific departments. On the other hand, the editors may think that photographic terms should be included amongst those "scientific and technical terms that can be safely spared from a work of this kind."

◆

Even if photography is not specially treated of, we may be sure that there are many terms common to it and other sciences which will be defined, as, notwithstanding vigorous exclusion of thousands of obsolete words, the actual count of words and phrases under the letter A alone is 19,736, which is nearly 2½ times the quantity in Webster's International Dictionary.

◆

PHOTOGRAPHY has long been a very valuable handmaid to the press, many journalists are enthusiastic followers in an amateur way, and on 7th inst. a meeting was held to inaugurate the Press Camera Club. Mr. W. Paull was elected Chairman, and the following officers: Hon. Sec. and Treasurer, F. H. Atkins; Librarian, C. W. Atkins; and Messrs. Gowing, C.K. Moore, and F. W. Grant, with the officers, as a committee. Rules were adopted and a subscription of 5s. decided upon. The club already numbers over forty, and Saturday afternoon tramps are to form a great feature. The address of the Hon. Sec. is The Press Club, 7, Wine Office Court, Fleet Street, E.C.

◆

THERE seems to be considerable truth in the adage, "There is nothing new under the sun." The invention of photography is generally looked upon as one of the numerous evolutions of the genius and civilisation of the nineteenth century; but lo and behold! we are now solemnly informed that the ancient Egyptians were the real fathers of photography. It is stated that whilst digging operations were being carried on amongst the ruined temples of Upper Egypt, an iron box to which was attached a suspicious-looking glass object was recently brought to light. These articles were eventually pronounced to be a camera and lens!

◆

PERHAPS if these digging operations were only carried a little deeper some embalmed specimens of the work of this ancient camera might be discovered also. We might then have the pleasure of feasting our eyes upon some priceless sun pictures of the features of the beautiful Cleopatra, and the collection of the British Museum might be enriched with the addition of some snap-shots, taken by an Egyptian amateur, of the israelites crossing the Red Sea.

◆

WE are afraid, however, that the newspaper accounts of the before-mentioned discovery must be taken with a wee grain of salt, for the whole affair may eventually turn out to be what the Americans call a "goak."

◆

THE South London Photographic Society some three years ago purchased a 12 by 10 camera for the use of the members. Since that time a wide-angle lens and lantern have also been added to the possessions of the club. Several other societies have followed the example thus set, and we now hear that the Manchester Society is about to purchase a large camera for a like purpose. The camera of the South London Society is always in requisition (being present at nearly every excursion), and many new members have joined solely for the purpose of obtaining the use of it.

◆

WE are promised yet another novelty, as we have received a very good print by a new *printing-out bromide* paper by means of which any tones from sepia to black can be obtained. This will be watched not only by amateurs but professionals and manufacturers, because it ought to be of great value. We hope to give more detailed information in our next.

◆

WE have received the June number of the *Studio*, which is devoted almost entirely to photography. We hope to give a complete review in our next.

Flotsam and Jetsam.

THE photograph album, more especially the album of family portraits, is not the most exhilarating thing in the world, as a rule. It suggests only too painfully the pangs of the bored visitor and the despairing host. To bring out the album is the last desperate resort of those who do not know how to entertain.

THE advance of photography is, of course, altering this state of things rapidly. Even the portraits of our wives and sisters and cousins and aunts can now be invested with some artistic grace, and need no longer be the wooden, expressionless things they once were. And photographs of scenery and figure studies can make up an album as well worth attention for a social half-hour as any portfolio of sketches.

BUT there is an album of photographs which has been mentioned in the daily press in the last day or two, that promises to be possessed of quite exceptional interest. It will contain the photographs of the officers of the garrison and of the relieving force at Lucknow, in the horrors of the Indian Mutiny. These officers dined together in pleasant fashion the other evening, and Surgeon-General Partridge said he had already received 112 portraits which had been placed in the album given for the purpose by Sir Joseph Fayrer. There will be no fear of *ennui* over such a collection.

The ladies had a field-night at the second soiree given by the Royal Society last week, and, as the children would say, played at being scientists to their hearts' content. The marvels provided on the ladies' night are always of a more popular and interesting character than on the other occasions when only the dry, dull males are present, and so there was plenty to amuse and to fascinate even those whom even the proverbs accuse of curiosity and love of novelty.

One wonders, however, whether the exhibits and attractions would have proved half so fascinating had it not been for the aid of photography. Geology, astronomy, geography—to mention three departments of science which were very prominent during the evening—all owed much of the simplicity and lucidity with which they were explained to the visitors, to the photographic illustrations accompanying them.

The rent houses and groynes at Sandgate, the surroundings and inhabitants of Brazilian and African villages, the scenery of the stupendous mountains away in far Kashmir, and even the light and structure of the sun's corona were all brought vividly before the visitors to Burlington House by the aid of the camera. The magic glass of the "Arabian Nights" could do no more.

Professor Thorpe was lecturing on the expedition to Senegambia the other day with the Solar Eclipse Expedition, and he paid a remarkable tribute to the work of the "photographic eyes of science," as he neatly termed them. He said the camera and its various modifications had virtually supplanted ocular observations, chiefly because it "was not troubled with nervousness, and having no imagination, simply set down actual facts."

So that what is a drawback in artistic work with the camera becomes an advantage in scientific work. The photographic artist should note this, and apply himself all the more to the imaginative part of his picture-making apparatus.

Electro-Photography is the latest birth of time. A simple and ingenious plan has been devised by which a copy of a negative taken upon a gelatine film may be reproduced with perfect accuracy at a distant station by means of the electric current. The root idea is that a needle traverses the uneven surfaces of the film, and the electric current moves another needle so as to engrave upon a waxen cylinder a copy of the film from which a typographic copy can be taken. We are getting used to this sort of thing now. Next, please!

Perhaps, after this, a look into the past may not be amiss. Will it be believed that photography was practised in the time of the pious Æneas we used to know when we had to construe Virgil in our school-days? There is a phrase in the Œneid which runs thus: "Capta imagine patris," and which may perhaps be Englished thus: "Moved by his likeness to his father."

For photographic purposes, however, and to make good the above assertion, the translation of a schoolboy may be adopted: "His father's likeness having been taken." Verily, there is no new thing under the sun.

Anchorite.

Letters to the Editor.

A SOCIETY FOR HOLLOWAY.

Sir,—I do not know if your correspondent is aware that North London is flocked with Photographic Societies, there being five in the vicinity, and in my opinion there are a great deal too many to make them flourish. One I can strongly recommend is the Finsbury Park Society; its rooms are at 8, Station Road, and it is a flourishing and go-ahead Society, with good officers. The Secretary is C. Frith, 8, Cavendish Road, Harringay.—Yours truly, A Member.

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PHOTOGRAPHY IN EPPING FOREST.

Sir,—There is a note in your Flotsam and Jetsam column which may mislead your readers. "Anchorite," giving as his authority my little book "Half-holidays with the Camera," says that permission is required to photograph in Epping Forest. Such is hardly the case, for a "permit" is only necessary to photograph in Wanstead Park, an enclosed part of the lower Forest near Leytonstone. I have myself protested against such permission being necessary, but the explanation is that it is enforced to prevent the peripatetic photographer—a very good fellow in his way, but somewhat persistent in hot and trying weather—practising his blandishments on a jaded public who have no souls for art—his art, at any rate—in that part of the Forest.

Amateurs applying to the "Town Clerk," Guildhall, E.C., will always meet with a courteous and speedy rejoinder.

Bernard Alfieri.

[We are much obliged for the correction. We were certainly under the impression, and believe it also to be pretty general, that a permit was necessary to photograph in Epping Forest.—Editor.]

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MR. IVES AND PHOTO-ENGRAVING.

A Correction.

Sir,—I notice that Mr. Ives, in his very interesting paper on "Composite Heliochromy," makes a claim which, for historical as well as personal reasons, I must traverse.

I yield to no one in admiration of the splendid work which Mr. Ives is doing in a most difficult branch of our art. I also acknowledge that in photo-engraving he has made his mark, and that it is specially to him that the net-work method has been so developed in America. Nevertheless, I must take exception to the following extract from his paper. He says: "As long ago as 1881, when I was *the only successful producer* (my italics) of half-tone process blocks for the type press, and had considerably improved upon the older methods of composite heliochromy, without quite realising the true principle which I first published in 1888, *I made the first photographic reproduction of a coloured subject by three impressions from process blocks* (my italics). This three-colour print, a reproduction of a chromo-lithograph, was referred to in a leading article in the *Photographic News*, September 5th, 1884, p. 561."

Now I claim, in opposition to the foregoing, that as regards both line and half-tone photographic engraving for blocks to be printed at the type press, *Dallastype and Dallastint are the oldest processes which have been worked commercially in this or any other country.*

I am quite willing to take a back seat in favour of Cousin Jonathan, John Chinaman, or even Tibetan Mahatma, if it is *proved* that any such ingenious persons have prior claims.

The first reference to Dallastype will be found in the *Photographic News* of July 27th, 1866, p. 360, and the Dallastint half-tone block method, in a letter of mine in the *Photographic News*, July 23rd, 1875. Further references to Dallastint, which I had been working commercially since July, 1875, will be found in the *Photographic News* of June 15th, 1877, and June 22nd, 1877. At the former date will be found, under the heading "Photography In and Out of the Studio," that special attention is drawn to the perfection of the gradation and detail in Dallastint blocks.

Then, as to colour, I refer to a letter of mine in the *Photographic News*, June 22nd, 1877, p. 299, in which I mention that I had applied Dallastint to composite colour printing, under the name of Chromo-Dallastint, and I drew attention to a specimen in four workings of a very difficult subject—viz., the reproduction of a sepia drawing which I was to exhibit at the Caxton Exhibition.

I have been producing Dallastype blocks commercially since the beginning of 1869, and Dallastint blocks since 1875. During the whole period I have produced some thousands of photographically engraved blocks, not only for this country, but for America, Canada, and other places.

I claim for Dallastint blocks that they render more perfectly half-tone and detail than the net-work system. The reason why net-work is in such vogue for half-tone blocks is—egotistical as it may seem in me to say it—because Dallastint is a secret process, while the net-work method is open to all. If Dallastint were known it would supersede net-work. The natural grain in Dallastint has a far more agreeable appearance to the eye. It can also do what is impossible to net-work—viz., render correctly the detail in photo-micrographs. Further, it is more easy to print, and requires very little "making ready." With net-work, on the contrary, it is only satisfactory when the mesh is extremely close, but then it is more easily blocked up by the ink.

A combination of Dallastint grain and net-work produces a better effect than the plain net. For best results, however, Dallastint natural grain is to be preferred.

Looking backward, it is interesting to note the evolution of the net-work system. The first use of a photographic screen or veil is in that classic patent of Mr. Fox Talbot—viz., No. 565, October 29th, 1852. He employed folded gauze to obtain his grain.

Later on—viz., twenty years after the above—Walter Woodbury, that most ingenious and indefatigable worker, patented the use of "mosquito netting," and Brussels net (see Patent 3,654, December 4th, 1872): and again in Patent 1,954, May 30th, 1873, he claimed the used of "fine ruled lines." Lastly, Woodbury obtained a patent (No. 4,735, October 5th, 1883) for the use of "fine ruled lines, netting, gauze, dots, or a print from a grained stone." Nothing really good was done by any of these methods until Mr. Ives in America introduced his net-work system, which was altogether a new departure, as described in his two United States patents—viz., February 8th, 1881, and August 9th, 1881. The method consisted in using, not a screen, but an elastic lined surface, which was inked, and then impressed on a relief, which could be photographed. When I saw Mr. Ives some three years ago I understood that he had sold his rights to a firm which was still working his system. The next advance was made by Meisenbach using a screen in some way in which I confess the patent did not give a clear idea. It, however, gave a great impetus to screen methods in Europe and America, and there are now several practitioners of the net-work style. I am bound to confess also that, given good printing conditions, very high-class work is produced, especially where copper is used instead of zinc for relief etching. Still, I do not hesitate to say that there will always be an artificial appearance, even with the finest net-work, and that in every respect the natural grain gives truer rendering and more agreeable effect. I can show examples of Dallastint, produced as far back as 1875 and recently, which, I think impartial critics will admit, bear out my contention. DUNCAN C. DALLAS.

5, Furnival Street, June 7th.

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A PRINTER'S ERROR.

SIR,—I notice on page 388 of your issue of June 9th, the statement that "the vapour of ether is very heavy, having twenty-five times the density of air." I think that there is a mistake in the place of a decimal point here, as ether vapour is not twenty-five, but 2·5 times the density of air.—Yours, etc.,

FRED. A. ANDERSON.

* * * *

DARK-ROOM AT BERLIN.

SIR, — I always look forward with pleasure to receiving the AMATEUR PHOTOGRAPHER regularly, as the German periodicals contain very little readable matter for amateurs—consisting chiefly of one ultra-scientific article, balance-sheets of the local societies, and a few extracts from English and American journals.

For the information of any English amateurs coming to Berlin, I am pleased to say I have discovered a dark-room for the *free use of amateurs* at R. Gaedicke's, 74, Ritter-Strasse, Berlin, S.W. Herr Gaedicke speaks excellent English, and is ever ready with any amount of advice and assistance. I have two English cameras here—a quarter and 5 by 4 plate—and Herr Gaedicke can always cut plates to the English sizes while you wait. I have tried most of the English and Continental plates, and have found Herr Gaedicke's plates, ordinary and isochromatic, unsurpassed by any.

If your Annual is not yet in the press, perhaps you might add the above dark-room to your list. I shall always be glad to give you any local information, as I have lived here some years, and can easily put any English tourist coming here in the right way.—I am, etc.,

CHAS. W. BURROWS.

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A WARNING, AND A REMEDY WANTED.

SIR,—In answer to "Sigma," I would say that the causes of metallic stains are many, but they are not easily accounted for. I think if "Sigma" would take a pellet of cotton-wool, wet it with methylated spirit, and then gently rub it over the stain, it would disappear. I cannot, I am afraid, advise querist more if this fails. —Yours faithfully, DIGBY H. W. PREEDY.

AMIDOL-HAUFF AND METOL-HAUFF.

SIR,—Having had some experience with these two developers newly put on the market, I send a short account of my experience, hoping it may be of interest to those who are beginners, and also trusting it may lead those who have tried these developers to give their experiences, as I feel sure a short discussion on this matter would be of interest to the readers of the photographic papers.

I am led to believe by what I hear that it is the general opinion of the photographic public that Metol-Hauff is brought out to replace Amidol-Hauff. I do not think so, as both are good developers, each having its own good points, but which is best must depend on the person who uses it. Personally, I prefer Amidol-Hauff for most work, but for lantern slides and time exposures I find Metol-Hauff works the best. Certainly if one requires a developer that will keep in liquid solution, Metol-Hauff is far ahead, as Amidol-Hauff will not keep well in this form, whatever it is mixed with. When mixed with sulphite, as per formula sent out by the makers, it will not last over 8 or 10 days, and when mixed with metabisulphite, as per formula I gave, it will keep much longer, but it is not certain in its results if kept over two months, and, therefore, in this point Metol-Hauff has a distinct advantage, as it will keep well—indeed, I should say for any length of time, as I have some stock solution which I mixed when it first came out, and which is as good now as on the first day it was mixed.

But I have found that both Amidol-Hauff and Metol-Hauff work best when kept in a dry state and mixed as required.

Which is the best developer for one to try who has not tried either is the point upon which I should like to start a discussion. As far as my opinion goes, I say Amidol-Hauff for *those who are old hands* at development; and for beginners, Metol-Hauff, as I have found that in cases of bad under-exposure, one can with adding potash solution get fog with Amidol-Hauff, but in no one case could I get developing fog with Metol-Hauff by forcing with potash. For ordinary exposures of say 1-50th sec. up, I think Metol-Hauff is as good a developer as it is possible to have, but for very fast exposures of say 1-300th sec. to 1-600th sec., I cannot get as good results with Metol-Hauff as with Amidol-Hauff. This may, however, be my own fault, as one of our greatest authorities (Mr. A. Pringle) says that Metol-Hauff is as good a developer as any known, and he certainly knows better than I do, but I can only say as regards myself, that with fair exposures I can get about equally good results using either Amidol-Hauff or Metol-Hauff, but for extra fast work I prefer Amidol-Hauff.

Now as to which is the best for bromide paper, I say Amidol-Hauff certainly when mixed with sulphite, as if you only use enough Amidol you can get a good, clear black, and use your developer for four or five prints without loss of tone, but when using Metol-Hauff one must not use it more than two or three times or one will get a bad colour on the bromide print. Also on no account must one dilute the Metol-Hauff developer if a good black is required. Metol-Hauff has one point which Amidol-Hauff has not, viz., one can develop a bromide print to a brown tone by giving a long exposure, and then diluting the developer, adding a lot of bromide and using carb. soda in place of carb. potash. Of course, it is impossible to give a fixed rule for mixing a developer for brown tones, as so much depends on the negative used and the colour you want to get, but I can say that a good brown can be got by this developer (Metol-Hauff) if used as above. I only mention it for a hint to others to help me with their experiments, as I have only been trying it a few days myself.

For lantern slides, as I said before, I prefer Metol-Hauff. Another point with Metol-Hauff (not that I think it an extra good one) is that it works specially well with ammonia in place of carb. soda or carb. potash, and one gets very fine black on bromide paper by using ammonia. The amount of ammonia to use must be found out by experiment, as one brand of paper requires more than another.

The formulæ I use are as follows:—

AMIDOL (STOCK SOLUTION).

No. 1.

Amidol-Hauff	1 oz.
Meta-bisulphite	1 ,,
Water	10 ,,

No. 2.

Water	10 oz.
Carb. potash	2 ,,

For use for bromide paper take—

Amidol-Hauff solution, No. 1	1 dram.
Potash solution, No. 2	1 ,,
Water	1 oz.

and four to five drops of a 10 per cent. solution of bromide. For ordinary snap-shot work use the same without any bromide, and for time exposures dilute by adding 1 oz. more water, and bromide as required.

But I think the best plan is to use the Amidol-Hauff dry as it will dissolve in a few minutes. The way I use it in this case is: I keep a saturated solution of sulphite soda on hand, a good quantity, say 90 oz. or so, as it keeps well in a stoppered bottle; for use I take say:

Sat. solution sulphite	6 oz.
(6 gr. per oz.) Amidol-Hauff	36 gr.

and four to five drops per oz. of a 10 per cent. solution of bromide, for my bromide papers and ordinary snap-shot work. For time exposures one should use the sulphite solution diluted with equal parts of water, and more of the bromide, but if one wants density the Amidol-Hauff should not be reduced.

For Metol-Hauff I use the formula sent out by the makers for a stock solution, or else I use it dry as follows:

Mix 36 gr. of Metol-Hauff in 3 oz. of water, and when dissolved add 3 oz. of sat. sol. sulphite, 6 dr. of 20 per cent. carb. potash, and a few drops of bromide; this works well with bromide papers and for ordinary hand-camera negatives. If the negative is under-exposed, add carb. potash solution 30 drops at a time till you get all you can out of the negative. For time exposures use more bromide up to 1 dr. or 1½ dr. of a 10 per cent. solution of bromide per oz. For density I find it best to trust to my bromide instead of diluting the developer with water.

Now I have given my experience with these two developers and had my say and started the ball, and I hope others will follow, for I think that although we have often heard of our old friend pyro being replaced, but did not think it would be so yet, in my opinion either of these developers (I fancy Metol-Hauff) will do it, and being so confident I wish to hear others on the same subject so as to see who agrees with A. R. DRESSER.

June 12th, 1893.

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CENTRAL PHOTOGRAPHIC CLUB COMPANY.

SIR,—The delay in issuing the prospectus has arisen in consequence of the time occupied in the further negotiations which have taken place between the executive, the solicitors of the landlords, and the landlords of the proposed premises, with reference to the form in which the latter are willing to lease the property. Most of the points at issue having been disposed of, a provisional prospectus is now being issued.

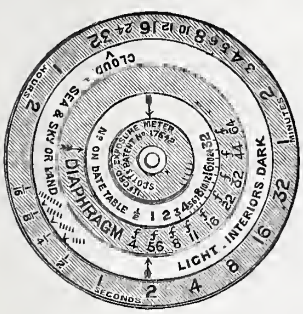
We wish to take this opportunity of apologising to the numerous applicants for prospectuses for our apparent neglect in furnishing same.—Yours truly,

W. FENTON-JONES,
CHAS. H. OAKDEN,
Hon. Secs.

Apparatus.

THE ILFORD EXPOSURE METER.

THE Britannia Works Company, Limited, of Ilford, E., have forwarded us one of the above, which is the invention of Dr. Scott, of Dublin, whose name has been for so long associated with exposure tables.



The meter is made of red and black ebonite, and has three revolving discs and two fixed discs. The central disc, which is fixed, is *the plate circle*. This is marked with points with S. R. for special rapid, I. I. for isochromatic instantaneous, R. for rapid, O. for ordinary, I. M. for isochromatic medium. The next disc is called *the date circle*, and bears numbers which correspond with Dr. Scott's well-known table, first published by him in 1885, and which is printed on the back of the instrument. The next disc is *the diaphragm circle*, and is marked with the *f*/- ratio numbers of diaphragms from *f*/4 to *f*/64. The third disc is marked with the subjects, and is therefore called *the subject circle*. The fourth disc is *the exposure circle*, and is fixed and is marked with fractions of a second, seconds, minutes, and hours. The three movable circles are marked also with arrows.

The method of using the meter is as follows: The arrow on the date circle is placed opposite the point corresponding to the plate used; the arrow on the diaphragm circle is placed opposite the number representing the date and hour when the exposure is to be made, which number is to be found on the back of the meter; the arrow on the subject circle is placed opposite the diaphragm to be used, and then the exposure required will be found opposite the several subjects.

There are, of course, two points which require the exercise of a little judgment; the one is the light, and the other the subject. With regard to the light, it is generally accepted that if the sun be shining the light is constant for any particular time of the year and day; if the sun is obscured, or the light dull or gloomy, the number representing the light intensity has to be multiplied by 2, 3, or 4, as required. The subject: for this a convenient little table is given in the little book of instructions sent out with the meter, which defines each subject, thus:—*Clouds*—cloud studies with little or no relation to landscape. *Sea and sky*—such as yachting pictures or well-lighted coast scenes. *Open landscapes*—distant views with very little or a strongly lighted foreground. *Buildings*—includes any well-lighted foreground study which is not of dark colour, and has not very deep shadows. *Groups*—these are supposed to be in the shade, protected from the actual rays of the sun. *Foreground*—heavy or dark foliage foreground studies, and light and dark interiors.

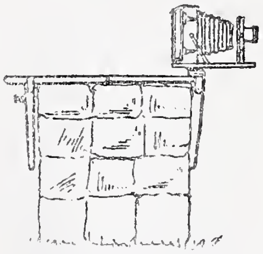
Included in the book of instructions are tables of light numbers for various latitudes, viz., 60 deg., 53 deg., 40 deg., 30 deg., 23 deg., and near the equator. We also find another valuable little note: "The isochromatic medium plates have now been increased in speed to make them equal to the Ilford *ordinary*. The Ilford special rapid plates are also greatly increased in speed, and are *three times* as fast as the ordinary. . . . The relative speeds of the Ilford plates may be tabulated as follows, taking the Ilford ordinary as requiring one second exposure under any given conditions:—

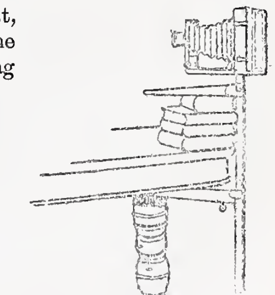
Ilford ordinary and isochromatic medium ..	1 sec.
Rapid	¾ ,,
Isochromatic instantaneous	½ ,,
Special rapid..	⅓ ,,"

The exposure meter itself is only 3 in. in diameter and 1 oz. in weight; it is simple in use, and is sent out in a neat pigskin tuck case, price 5s., and is likely to be of great assistance to workers of Ilford plates.

THE BOTHWELL CAMERA CLAMP.

Messrs. Ralston, Goodwin and Co., of 234, Buchanan Street, Glasgow, have sent us one of these useful contrivances. It consists of a jointed rod notched on the lower edge, and along this arm slides an arm with screw clamp, which serves to fix it to almost any object, such as a wall, a fence, gate, tree, waggon, cycle, a boat, door, ladder, window sash, etc. The camera is attached by a screw working on a ball and socket joint, and it can be clamped either to use the camera in the ordinary way, or pointing up or down.



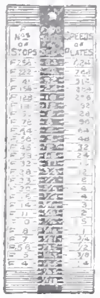


It is light, folds up small, and will be found a valuable assistance to practical work.

WYNNE'S INFALLIBLE EXPOSURE METER.

The Infallible Photographic Exposure Meter Manufacturing Company, of Wrexham, have sent us one of the above.

It is a flat boxwood slide rule, 3 in. long and 1 in. wide, with a central sliding strip of brass, which is marked with certain numbers. On the left of this brass slide are marked on the boxwood rule the *f*/x ratio numbers of stops from *f*/4 to *f*/256; on the right are marked certain numbers corresponding to the speeds of plates. To use the meter a small actinometer is employed, and the intensity of the light is measured by the number of seconds the sensitive paper takes to darken to a standard tint. The sensitiveness of the plate is found from a table given in the book of instructions, the unit of plate speed is the speed which takes the same time for the exposure of the plates upon a normal subject with *f*/8, that the actinometer takes to colour to the standard tint. From this it is obvious that the figure which represents the speed of the plate also represents the ratio of plate exposure to actinometer exposure for *f*/8, and the meter is so arranged that having once set the central slide to the plate speed, the correct exposure for every stop can be read at sight.



The meter is calculated for all ordinary subjects, such as landscape with strong foreground, groups, buildings, etc., and to modify the exposure for exceptional subjects, it is only necessary to place the central slide a certain number of divisions higher or lower, according to the amount of variation required. The plate-speeds, we note, can be found from Hurter and Driffield's numbers by multiplying the same by $2\frac{1}{2}$, and from Watkins' numbers by multiplying by $1\frac{2}{5}$. The meter may be used for copying, enlarging, and for instantaneous work.

The meter is simple in use, as the one scale of plate speeds represents not only the speed of plate, but also the variation due to special subjects and the ratio of exposure to actinometer time, whilst the central slide marks the exposure. Its use is likely to help many in obtaining correct exposure.

Holiday Resorts and Photographic Haunts.

A FEW DAYS IN SWITZERLAND WITH A HAND-CAMERA.

By W. B. DART.

GENEVA.—One of the centres for various excursions, and amongst others a short trip by the little railway as far as Monnetier, then a walk of about two miles to Veryier will repay the photographer. About a mile from Veryier a capital view of the French Savoy may be taken. Veryier itself is a small village, but has its interesting characters which are well worthy of a plate or two. The Quay at Geneva affords ample opportunities for the snap-shottist, with the steamers (arriving and departing), peasants, and strolling players, the latter being very difficult to "catch" when playing, as these musicians naturally prefer to play under the shade of some tree, etc.

VEVEY.—On the Lake of Geneva, very English. The scenery from the higher part of Vevey is said to be some of the prettiest in Switzerland. The pump in the Square should not be missed, as some days the washerwomen may be found at work here, and if they can be "caught" at work the result would be interesting. From here one can reach Chillon either by the electric railway or by boat. The afternoon is about the best time to photograph here, and a clear day for same should be chosen if possible, as the Dent du Midi in the distance then helps to make a very pretty picture of Chillon.

BERNE.—A good general view may be had here from the west side of the Aar, and about half a mile from the celebrated bear pits. If a fine day a bear may be "caught" up the tree in the centre of the pit. The celebrated clock must not be missed, and several of the fountains are very interesting.

LUCERNE.—The snap-shottist will have great opportunities on the quay. The famous "Lion of Lucerne" has to be paid for, I believe, to be photographed. A little way out of the town a capital view of Lucerne may be had, with Mount Pilatus in the distance.

VITZNAU.—The ascent of the Rigi commences here. If a clear day, several interesting exposures may be made, but if misty the camera had better be left behind. Vitznau is a small but interesting little village (at the foot of the mountain) and well repays a quiet stroll through.

ANDERMATT.—From Vitznau take boat to Fluellen (passing Tell's Chapel) thence to Goscheuner by train, and from Goscheuner either walk or ride up to Andermatt. This place is generally very busy in the summer, being a great mountaineering centre. Some capital photographs may be taken here, some of the streets being very quaint.

BRIENTZ.—Here some time may be spent in taking chalets, especially some near the lake.

INTERLAKEN.—Itself not so very interesting, but from here, by rail, can be easily reached Lauterbrunnen, Grindelwald, etc. The celebrated fall at Lauterbrunnen should be taken in the morning, as in the afternoon the light is completely gone from the fall.

When possible plates should be changed at night, as some of the hotel dark-rooms are not so dark as the proprietor fondly imagines, and if isochromatic plates are used, well they won't stand much chance in some of the so-called dark-rooms.

THE AFFILIATION OF PHOTOGRAPHIC SOCIETIES.

MEETING of delegates on 6th ult., at 50, Great Russell Street, Bloomsbury, Mr. Andrew Pringle (P.S.G.B. and West Kent A.P.S.), chairman, presiding.

The minutes having been read and confirmed, a balance-sheet up to April 30th, showing a balance in hand of £27 7s. 10d., was read by the Secretary, and adopted. It was proposed by Mr. Bickerton (Richmond C.C.), seconded by Mr. Creswick (Greenwich P.A.), and carried, that a balance-sheet should be prepared by the Treasurer, up to the 31st December in each year, and having been audited by two auditors, appointed at the first meeting of delegates in the same year, shall be presented at the first meeting in the ensuing year.

Messrs. Hodsoll (North Kent A.P.S.) and Beckett (Hackney P.S.) were appointed auditors for the current year.

It was proposed by Mr. Marchant (North Middlesex P.S.), seconded by Mr. Bickerton, and carried, that Mr. Scamell be asked to continue to act as Treasurer.

A discussion took place upon the question of approaching the railway companies with a view to the reduction of fares to photographers. A letter from the Birmingham Photographic Society having been read upon the subject,

Mr. Horton (Birmingham P.S.) detailed the steps already taken by his Society in the matter.

The Secretary announced that the aggregate number of members represented by the affiliation was roughly 5,000.

A Committee, to consist of Messrs. Mackie (P.S.G.B.) and Oakden (South London P.S.) and the Secretary, was appointed to investigate the whole question of reduced railway fares to photographers, to report at next meeting.

A letter from the Hon. Sec. of the P.S.G.B. was read, announcing that that Society was arranging for a Congress, and asking for the consent of the Committee for the words "of Affiliated Societies" to be added to the title "The Congress of the P.S.G.B.," which was agreed to. The letter also asked the delegates to invite suitable members of their Societies to furnish papers for the Congress. The Chairman announced that the papers already promised were from men of the very highest standing in the photographic world.

He also made some remarks as to the powers of the Committee of delegates, and after some discussion it was resolved that a sub-Committee be appointed to consider the question of additions or alterations to the existing rules, on the understanding that their recommendations should be on the agenda paper of the next meeting. The sub-Committee consist of Messrs. Mackie and Marchant.

It was agreed that the hour of meeting should be 7 30 p.m.

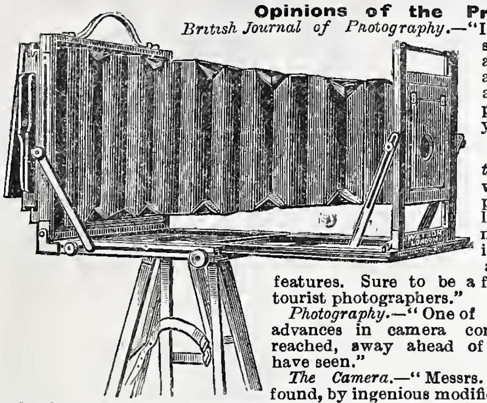
A discussion took place upon the subject of a uniform ticket, and it was understood that the Secretary should urge the Affiliated Societies to have their members' tickets stamped with the Affiliation stamp.

* * *

Rotherham.—Monthly meeting, 6th inst., Dr. Baldwin (President) in the chair. It was announced that the Rotherham Corporation had offered the use of a room in the Clifton Park Museum for a representative display of the society's work. Mr. Jerome Harrison's Warwickshire Survey paper was discussed, and, after, a resolution was passed, recommending the Committee to consider the best means of conducting a photo survey of the Rotherham district. Negatives and prints resulting from the Ingleton excursion were exhibited and criticised. Three new members were elected.

W. WATSON & SONS, 313, High Holborn, London.

WATSON'S "ACME" CAMERAS.



Opinions of the Press.

British Journal of Photography.—"It folds into a smaller compass, and is lighter and more portable than any pattern we have yet seen."

Amateur Photographer. — "A wonderful, compact, and fairy-like instrument, exhibiting several new and important features. Sure to be a favourite with tourist photographers."

Photography.—"One of the greatest advances in camera construction yet reached, away ahead of anything we have seen."

The Camera.—"Messrs. Watson have found, by ingenious modifications, how to make the weight still lighter, and the rigid still more firm."

English Mechanic.—"For portability and compactness, combined with practical utility, this Camera may fairly be said to take the lead, and to be deserving of the title 'Acme.'"

W. W. & S. have the largest stock of Photographic Instruments held by any House in Europe.

Cameras and Lenses in all patterns and sizes from ¼-plate to 24 by 20, ready for immediate delivery, and being actual manufacturers, there is no middle profit to pay, and the very fullest value for cost is given in all their Instruments.

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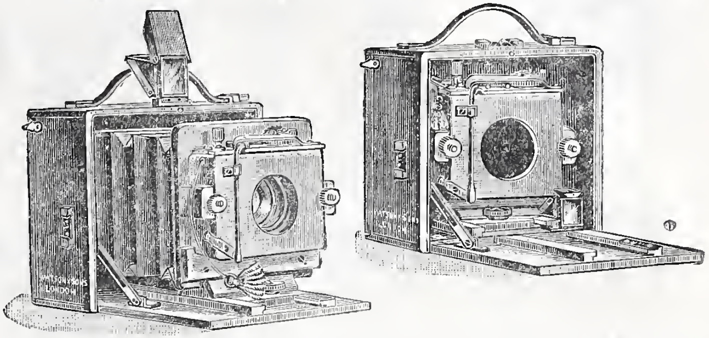

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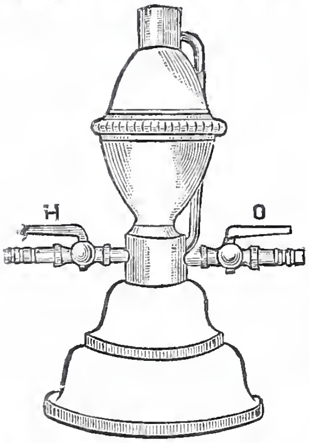

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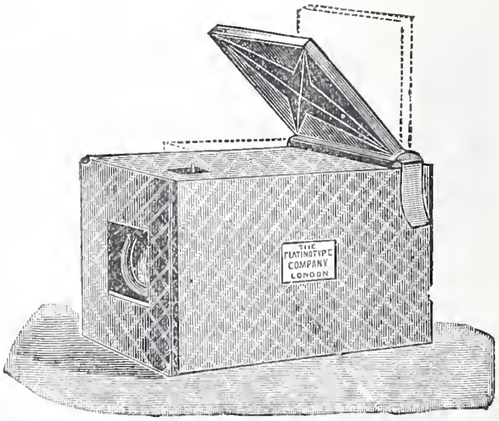

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Photographic Procedure.

By E. J. Wall,

Author of "The Dictionary of Photography."

(Continued from page 315.)

Section VII.

FIXING AND CLEARING.

Fixing is the removal from the film of the sensitive salt not affected by light and the developer. In the old wet-plate days cyanide of potash was used, but with gelatine dry plates, hyposulphite of soda or hypo is the safer solvent for the silver salt; ammonium hyposulphite, sodium sulphite, and several other salts have been suggested, but "hypo" still holds its own.

It is often recommended to well wash the plate after development and before fixing,and whilst in the case of the ferrous oxalate developer it is an absolute essential, with all other developers it may be considered merely a convenience. Traces of ferrous oxalate carried into the fixing bath soon cause a dense yellow precipitate, which adheres to the plates tenaciously and stains the film yellow, and if the developer be acid or the acid fixing bath be used, considerable reduction of density may take place by the formation of ferric oxalate.

An alum or acid and alum bath is also frequently suggested after development and before fixing. If this be used, it is always advisable to well wash the plate, or any considerable quantity of alkali adhering may precipitate alumina, which is not an easy matter to remove. If an alum or an acid bath be used, it is absolutely essential to thoroughly wash before fixing, or else the fixing bath will be decomposed and sulphur precipitated in the film; as all the advantages of the use of an acid or alum bath may be obtained by using the acid or alum fixing bath, this is to be preferred.

The ordinary fixing bath should be made by dissolving hyposulphite of soda in water in the proportion of one to four, or by dissolving a quarter pound of hypo in a pint of water. It is, however, always advisable to keep a fairly large quantity of hypo solution ready made, and a convenient way of doing that is to obtain from a chemist a wide-mouth bottle known as a small pottle bottle, which holds about half a gallon. A pound of hypo placed in this and then filled up with fairly hot-water, about the temperature the hand can comfortably bear, will give in a very short time with shaking a stock solution of about the right strength.

For negatives developed with pyro, and, in fact, with nearly all the recent developers, the acid fixing bath may be used with advantage; this may be made either by adding sulphurous acid to the ordinary fixing bath in the following proportion :—

Hypo solution (1 to 4)	1 pint.
Sulphurous acid	¼ oz.

Preferable to the sulphurous acid is the acid sulphite of soda, or bisulphite of soda, which is sold by Marion and Co. under the name of Theonine, in the following proportion :—

Hypo solution	1 pint.
Theonine	½ oz.

Metabisulphite of potash may also be used in the same proportion.

Another convenient method of making the acid fixing bath which was suggested by Lainer ("Photo. Corresp.," 1889, p. 171), is the following :—

Acid Sulphite Solution.

Sodium sulphite	½ oz.
Tartaric or citric acid	¼ „
Water	3 „

Dissolve the sulphite in 2 oz. of water and the acid in the remainder, and mix, and add to 25 oz. of the ordinary fixing bath suggested above. The acid bath thus made should be quite clear; if there is any cloudiness, too much acid has been used.

The alum fixing bath is made as follows :—

(1) The Alum Solution.

Alum	1 oz.
Sodium sulphite	2 „
Water	20 „

Dissolve, and add to 25 oz. of the ordinary fixing bath.

The advantages of the acid and alum fixing baths are that they exert a clearing and hardening effect on the gelatine film, thus avoiding any yellow staining, and that they keep colourless far longer than an ordinary neutral bath; they take slightly longer to fix than the ordinary bath, but the difference is not of much moment.

There are one or two points in connection with the use of the fixing bath which it is as well to note. When hypo is dissolved in cold water the temperature of the solution sinks considerably, and if it be used immediately it is very liable to cause frilling or blistering, therefore it is always advisable to use warm water to dissolve the salt. Again, it may be thought that the stronger the solution the quicker the fixation. This, however, is so only within certain limits; a concentrated, or rather saturated, solution of hypo actually takes longer to fix than a solution of the strength suggested above, 1 : 4. The questions of how long to use a bath and how much hypo is necessary to actually fix a plate must be determined first by the colouration of the bath, and secondly by the amount of silver salt on the plates. As, however, we can only guess at this latter quantity, the following calculation must be taken only as a rough guide. It has been estimated that there is 0·003 grm. in every sq. cm. of a bromide plate; this is equal to about 7 gr. in every whole plate. It is estimated that 80 per cent. of the bromide is dissolved in the fixing bath. Now, it is well known that the most soluble hyposulphite of silver is formed with excess of hypo according to the equation—

$$2AgBr + 3Na_2S_2O_3 = Ag_2Na_4 3(S_2O_3) + 2NaBr.$$

From this it will be seen that it requires practically 11 gr. of hyposulphite to fix a whole plate, but for safety sake we allow more, for if the plate contained more silver than we have allowed for we should get an imperfectly fixed plate. We can then safely allow a drachm of hyposulphite of soda ($Na_2 S_2 O_3 5 H_2O$) for every whole plate, and it is easy from this to calculate the quantity for other sized plates.

A point disputed for some considerable time in these columns in past years is whether a plate can be fixed in white light or not. Provided all traces of the developer are removed from the plate, and the acid fixing bath be used, but little difference can be noted between a plate fixed in white light and one fixed in the dark-room. On the other hand, there is a difference, and one which is best seen by allowing a plate to partially fix, taking it out, cutting in two, and exposing one half to white light, and leaving the other half to fix in the dark; that half fixed in white light has a very slight but delicate fog or veil over it.

(To be continued.)

* * *

Hackney.—Ordinary meeting held 6th, Mr. E. Puttock in the chair. Mr. Borrow was nominated, and Mr. Magnet elected a member. The Hon. Secretary distributed samples of the Barnet plates, and asked those members who took them to give in their report at the next meeting. He had used a large number, and was very favourably impressed with them. Mr. A. Dean then gave in report of excursion to Loughton on Derby-day, which concluded with a social. Work was then shown by Messrs. Hensler, Dean, Richardson, and Wire. The rest of the evening was devoted to a private exchange and sale, the idea being that many members had accumulated a lot of photographic accessories which were useless to them but would be useful to others.

STEREOSCOPIC COMPETITION.

W. I. CHADWICK.

CRITICISM ON THE UNSUCCESSFUL.

NO. 1 SERIES. H. G. RIDGWAY (Sunderland). Twelve transparencies on glass, in very fair variety. In the slide of "Dove Dale" the base-line in one picture is higher than the other. "Durham Cathedral" is under-printed. "Cliveden Ferry" is a picture *cut in two* by the straight line of the far bank of the river running through the centre. "The Terrace, Haddon Hall" should either have had the trunk of the tree on the lawn shown, or the branches left out. "Hareshaw Linn" is a good picture of a difficult subject. The "Blasted Oak" is a similar subject to the previous one, but an inferior photograph—it is too snowy.

No. 2 Series. J. HIGSON (Salford). Twelve technically perfect slides, with one or two exceptions of *hardness*. The white cottages and the parallel wall in "Llanberis" are not any improvements in this otherwise pretty picture; the lights are in too strong competition with the man in white shirt. "Cheshire" is a pretty picture spoiled by the figure of a man looking for something hardly suggested in the picture; three parts of the tree in which he is looking has been cut away by the mount; the whole of the tree should have been shown. An upright mask, perhaps oval shape, would have much improved "Cheshire" (No. 6), by cutting away much of the bank in the foreground, lowering the horizon, and introducing a sky. "Bettws y Coed" has too much water *to let* in the foreground. The two road-side studies of "Blackberries" are excellent, and would be still further improved by more printing—*softer*.

No. 3 Series. J. J. M. BERRY (Alnwick). Twelve transparencies on glass, mostly winter views, with trees sticking up from goodness knows where, overhanging branches covering nearly the whole of the picture, unsupported by anything. "Cawledge Burn, Alnwick," has about three times too much foreground, with a very straight wooden fence cutting the picture right through the centre.

No. 4 Series. W. W. STAINTHORPE (Saltburn). Five paper slides and seven transparencies. The paper slides are the best, but the whole lack style. "Boxwood Carvings" is very good for what it is. "A Snow Scene" has the general fault of twigs and branches without visible support, and looks like a piece cut out of a larger picture. "Dewdrops on Cobweb" is interesting, but would have been improved by a better background. "Marguerites" is a very pretty little study.

No. 5 Series. G. W. BLACKWELL (Sheffield). Seven paper slides from negatives taken on half plates and mounted full depth on cabinet cards. There is no reason why stereoscopic pictures should not be as much as four inches deep, when the shape is suitable to the subject. In this series, however, a considerable amount of pruning would be an advantage. Such pictures as the portrait of the dog "Duke" are of no interest to anybody but the owner. The two photographs of "Peel Harbour" show very well what Peel Harbour is like, but there is nothing in the subject to make *pictures* for a competition.

No. 7 Series. W. MILBURN (Sunderland). Twelve paper slides of cut-flower studies. These are very pretty subjects and from technically good negatives, but they are printed in platinotype, which is not at all suitable for the stereoscope; had they been printed on gelatino-chloride paper, or, still better, as transparencies, they would have shown up very well. Again, they are too much of one class for a general competition.

No. 9 Series. J. YOUNG (Bolton). Six transparencies printed on 6½ by 4¼ ground-glass plates. Are exceedingly good photographic work, but "The Miner's Bridge, Bettws y Coed" has been taken too large to make a *picture*, it being practically a lot of straight parallel lines running diagonally from top to bottom. In "Shanklin Chine" we are looking across the Chine at some pretty houses on the other side, but the mass of overhanging branches which nearly cover the whole of the plate and without a particle of foreground, gives the impression that we are up a tree. Of course, it is quite easy to understand that these branches were introduced to give stereoscopic relief and distance to the houses on the other side, but a little foreground would have done that much more artistically. "The River Dee, near Ruabon" is a beautiful slide. "A Shady Walk by the River Dee" is not improved by the plain tree-trunk sticking up in front; we cannot see where it comes from or where it goes to, there is not a particle of foliage on it, it balances nothing, and has no right there. The extra depth (viz. 4 in.) may improve some subjects, but there are others that won't stand it. For instance, "A Lodge near Ruabon" is, in my opinion, improved by cutting down to the usual size.

No. 10 Series. W. FAIRWEATHER (Ibron). Nine paper slides. "A Waterfall, Barmore" is much too "hard." "On the Clyde at Bothwell" is also too hard; the halation in the trees might be improved by rubbing the negative with a wash-leather moistened by alcohol, but, there is too much space "to let" in the foreground.

No. 11 Series. GEO. BELL (Preston). Seven paper slides mounted on five cards. "The interior of St. Luke's Church" could be improved by better printing. The negative of "The Rockery" is either much fogged or halated. "The Garden Seat" and "Companions" (a gentleman and his bicycle) are private portraits, and are out of place in photographic competitions of this class. "A Quiet Spot" is very much too "hard," and the "Bridge on the Brock" is spoilt by halation.

No 12 Series. R. W. COPEMAN (Henstridge). Ten paper slides. Very pleasing pictures, and neatly executed.

No. 13 Series. T. W. W. MELHUISH (Vienna). Eight transparencies printed on ground-glass plates. Four of these are mounted with the usual black paper masks between the slide and the cover glass, and are all in focus, and fairly good work; but the other four are mounted with a transparent margin by masking during the printing, and the thickness of the paper mask has thrown them all out of focus.

No 14 Series. J. Taylor (Dewsbury). Twelve transparencies on glass. Right-down decent work. "Crystal" reminds one of the beautiful slides of the late Charles Breese, and for such subjects—cut glass, marble work, fruit and flowers—no photographs can hold comparison with a stereoscopic slide. "Venchley Lane, Jersey" is very much too "hard" and "snowy." The negative is too hard. Negatives of foliage subjects like this, in strong contrast, should be made "soft," either by exposing in a less strong sunshine, or by longer exposure, or less pyro in the development. One or two others suffer rather from the same fault; otherwise, as I have said, they are very fair average work.

No. 17 Series. Mrs. Wall (Ashburton). Twelve paper slides. "Fluff," the portrait of a very fine cat, is good, but would have been better on smooth-surface paper. Most of the others, wood and river views, are too "sticky," and seem to have been taken with very little better intention than that of exposing plates.

No. 18 Series. W. B. Cassingham (Tunbridge Wells). Six transparencies on glass. Fairly good photographs, though No. 3 is too "chalky;" more printing would very much improve this slide. In No. 1 the grouping of the boys with a boat is not bad, but the captain is paying rather too much attention to the photographer. No. 4 is a bridge, too plain and straight on the top to make a picture without considerably more foliage. No. 6, "A Cool Spot," has the horizon and the top of the gate running in parallel straight lines, and it is with some difficulty we observe the sheep; the gate might have been opened to advantage.

No. 19 Series. J. Warburton (Bowdon). Ten transparencies on ground-glass plates. Photographically these are amongst the best work in the competition; the first six views at Lynmouth are all good pictures from favourite spots. "The Harbour at Clovelly" is rather under-printed, and the boat heeled over in the foreground wants some support to balance it. "Near Lake Side, Windermere," is a pretty view with overhanging branches, which are quite consistent, having the trees to balance them. "Brathey Bridge" might have been taken with more foreground, and the bridge smaller. "A Calm Day, Windermere" would have been improved with the boat *foreshortened* and a little more printing.

No. 20 Series. W. L. Ellsworth (Huyton). Twelve transparencies on glass. I have seen hundreds of worse slides than these, but they fall short in the composition; the bridges at Exeter, Aberfoyle, and Trossachs are too *flat on*, too straight. "The Old Guide, Land's End" would have been better turned the other way, the figure is too stiff. Exeter Cathedral is a good interior. A milkmaid would have been better than the lady in fashionable costume at the "Welsh Mountain Home." The fence with two straight parallel lines cutting straight through the centre of the picture of "Totnes on the the Dart" has ruined it.

No. 23 Series. F. Mackenzie (Glasgow). Twelve transparencies. All too thin and short of vigour as photographs, and one or two are out of focus. "The Birds in the Snow" is a very successful slide and the best photograph in this series. "The Children with Mail Cart," and "Young Lady with Doll," are family portraits not suitable for competition. In No. 7 of this series, the white wooden bridge is anything but picturesque.

The Elements of Photo-micrography.

By Mikron.

There are few scientific fields of research in which the aid of the microscope is not resorted to more or less frequently. And all who use the instrument, whether professionally or otherwise, have, no doubt, often felt the need of a faithful reference picture of an object examined long ago, or have desired to obtain a permanent record of the exact appearance of an object at the time under investigation.

Whilst it is perfectly true that a great many microscopists are able to produce excellent pencil or pen and ink drawings of the objects observed, their number bears but a small proportion to those equally skilful workers whose digital movements are not sufficiently delicate to trace the details of a microscopic preparation.

For somewhat hasty work it is frequently quite sufficient to make a careful, though necessarily a rough, sketch of an object; and those who are skilled in the use of the pencil may obtain very fair results by applying the left eye to the microscope, and using the right eye to follow the course of the pencil on paper. A still better plan is to employ the camera lucida or a neutral-tint reflector for all such hasty work. But, even with the greatest care, drawings are always imperfect. They not infrequently represent not what was seen on a single plane, but on several planes; and this is particularly the case where objectives of high power have been employed, as the least movement of the fine adjustment is sufficient to bring an entirely fresh plane into view. To the observer himself such a record may be quite satisfactory, and frequently of much more use than a sketch or photograph representing one plane only, as it may supply him with the appearance of the internal structure of an object, or of the ramifications to which the branch-like processes of the fungi are subject under different conditions of growth. In fact, many points of interest may be noted in a drawing which would entirely escape reproduction in a photograph. Take, for example, a portion of the mycelium of a mould, that is the part which corresponds with the root of other plants: the thread-like branches will be seen to be so closely interwoven as to present, in many places, quite a blurred or "fuzzy" appearance if photographed; but if sketched, each individual branch may be traced throughout its entire course, and its variations duly recorded.

When making an examination of media containing a variety of organisms, such as bacteria, the characteristic appearances of each of the varieties are not so readily obtained by photography as by the use of the pencil. We may find some formed of chains of spherical or rod-like organisms, others resembling dumb-bells, formed of very small spherical bodies united in couples; others, again, are arranged, as it were, at the four angles of a square. Some of the organisms reproduce by transverse division of the parent cell, others by the formation of spores, which are more or less distinctly seen as highly refractile bodies within the cell. With such a field it is practically impossible to get all the detail desired in one plane, as the organisms, particularly the larger forms, have a disagreeable habit of arranging themselves at very awkward angles for observation, and it is only by following them upwards or downwards that we can get a knowledge of their true form. It is in such cases that a good drawing is preferable to an indistinct photograph. For, under these circumstances, one wants a record as faithful as possible of the whole of the contents or inner organisation of each of the forms of life observed, although it must not for one moment be inferred that the recognition of their species can be satisfactorily ascertained by a mere microscopical examination.

From these remarks it will be gathered that all objects are not well fitted for photo-micrography, when examined in their natural state; but by careful manipulation in the preparation of the slide many of the difficulties may be overcome.

The practice of photo-micrography should never be followed unless the experimenter has considerable skill, not only in the use of the microscope, but also in general photographic manipulation. And the better acquainted he may be with microscopic and photographic optics the sooner will he obtain presentable results and command success as a photo-micrographer.

Again, all such reproductions should be taken with a definite object in view. No random work should be done; the novice so inclined will be able to find many much more enjoyable means of wasting his plates than by entering this field of work.

The successful photo-micrographer should be decidedly utilitarian in his views; it should ever be his aim to obtain a permanent record of the exact appearance of a microscopic preparation possessing some feature of an interesting or instructive nature. To this end it is absolutely essential that the operator should be thoroughly acquainted with the nature of the object to be photographed. And it is, therefore, much better for the microscopist to become his own photographer than to hand over his preparations to a professional who may be altogether ignorant of the very features which make the slide instructive and give it value.

Although photo-micrographs, as a rule, are infinitely better than pencil sketches or ordinary diagrams, they, in common with the other methods of illustrating characteristic features of minute objects, are not without their great disadvantages. Perhaps the chief objection to their use lies in the fact that they give a true reproduction of only one plane of the subject—this being especially noticeable when objectives of high power are employed. There is always a want of penetration or depth of focus, which gives rise to a somewhat disagreeable, fuzzy appearance. The time required also often militates against their production.

It is, therefore, very desirable that the details of the processes for making permanent mounted slides should be thoroughly mastered by all engaged in microscopy, so as to be of use in case of emergency. Furthermore, it is an excellent plan to keep mounted preparations, in addition to the photographs or sketches, of all objects possessing special interest.

With regard to the apparatus required, its form or construction will depend upon the class of work it may be desired to treat. In some cases it will be found most convenient to use the instrument horizontally; but when working with liquid media, such as nutrient solutions containing bacteria or moulds, it is, of course, necessary to have the apparatus in a vertical position. Too much stress cannot be laid upon the necessity of employing apparatus of superior workmanship only, and this is particularly so when it is required for use with high powers of amplification.

Regarding the various parts of the apparatus, the microscope itself is first in importance. It need not necessarily be a large instrument, but it must be supported on a good steady stand. Some workers prefer a tripod arrangement, whilst others favour the horse-shoe form. But this is usually a mere matter of individual taste, as the makers of modern microscopes, as a rule, pay particular attention to the firmness and rigidity of the stand.

A good stage is also a necessity, and if it be provided with mechanical movements for bringing the object into position, much time and trouble will be saved; but an inferior mechanical stage is always a source of great annoyance, owing to the uncertainty and unsteadiness of its movements. In addition to the rectangular movements which constitute the simplest form of such a stage, a great many of the better class of instruments are provided with a circular rotating stage carefully graduated. And although these appliances add considerably to the cost of an outfit, they are really a great pleasure to work with.

The accessories of the stage, which form the sub-stage arrangements, likewise depend upon the class of work the instrument is to be used for.

Perhaps the most important conditions which the stage and its accessories have to fulfil are the correct centering and powerful concentration of the light upon the object to be photographed.

When employing the microscope in a horizontal position it will not be necessary to use a mirror for reflecting the light, as it may be received direct from its source; but when working vertically it is really essential. Photo-micrography with high powers demands the very best illumination of the object that it is possible to obtain, as the intensity of the illumination of the projected image is so greatly reduced, especially when a long extension of the camera is used to gain increased amplification.

If we put the source of light out of consideration for the present, then the most satisfactory way of obtaining the best definition is by the use of a piece of apparatus known as a stage condenser, which simply consists of a number of lenses mounted in such a way as to collect a large amount of light and bring it well concentrated to a focus on the object under examination. It is absolutely imperative that the condenser should be thoroughly achromatic.

Some condensers, such as those forming part of Abbé's illuminating apparatus, are specially constructed for use with immersion objectives, and their power is greatly increased if the space between the flat surface of the upper lens and the under surface of the object slide be filled by a medium of a higher refractive power than air, such as water, glycerine, or cedar oil.

Another indispensable accessory, which is usually placed immediately beneath the condenser, is the diaphragm for regulating the amount of light. It usually consists of a circular plate with a number of apertures or circles of various diameters. Sometimes, however, openings of a different form are provided for special purposes. But, if of really good workmanship, the iris diaphragm is decidedly the best form to employ, as the aperture may be varied at will, without interrupting the observation. Frequently the diaphragm is supplemented by a rackwork arrangement by which varying degrees of oblique illumination may be obtained. But, in any case, the system, however complicated, must be so constructed as to be easily and with certainty accurately centred with the axis of the whole apparatus. If this point be neglected the plate will be irregularly illuminated, and, consequently, the projected image will be more or less indistinct. The whole of the substage appliances should be capable of movement upwards or downwards by means of a well-constructed rack and pinion arrangement.

The body or tube of the microscope should be under perfect control, and be brought into focus by two movements—a coarse and a fine adjustment. The latter should be particularly sensitive and steady in action.

The microscope lenses consist of eyepieces and objectives. The latter are always of the utmost importance, and none but those of superior workmanship should be employed for photo-micrography. They should be perfectly aplanatic, that is to say, quite free from spherical aberration; and also achromatic, or free from the cause of coloured fringes or tints often seen surrounding objects viewed through imperfect combinations.

Objectives are usually marked according to their focal length, varying from 4 in. to 1-50th in., but, as a rule, their focal distance is less than they are actually termed. The optician's object being to express the focus a single lens would require to give the same amplification as the compound objective.

The amount of light that an objective admits is a very important matter. To a great extent it depends upon its angle of aperture; that is, the angle formed by two lines drawn from opposite sides of the aperture to the focus of the lens. The disadvantages of lenses with a large angle of aperture are that it is necessary, and at the same time, for general purposes, it is usually inconvenient, to bring the glass very close to the object. The penetrating power is also greatly reduced; but the increase in resolving power more than compensates for other inconveniences. A lens with a medium angle of aperture, of course, strikes the mean between these characteristics, and combines brightness of field with power of penetration. The penetrating and resolving powers of a lens should not be confounded.

Power of penetration is the same as depth of focus, and indicates the capacity of a lens to gives an accurate view of more than one plane of an object from a fixed point of focus.

The resolving power of a lens is one of its most valuable features. It refers to its power of rendering distinct or resolving fine details of structural formation, such as the markings on diatoms, the closely ruled lines on a test-plate, or separating dots or cells, so as to make them individually discernible. The resolving power is, therefore, directly opposed to penetrating power. The former requires a large angle of aperture, whereas for the latter a small angle of aperture is necessary. The two properties can only be combined in a single objective by a reduction of each.

Opticians endeavour to make lenses of high power with as high an angle of aperture as possible; the maximum for air necessarily being 180 deg.

In order to still increase the resolving power of objectives, many of them are used as immersion lenses. In such cases the front glasses have to be immersed in a drop of water, glycerine or oil placed on the cover glass. It is, of course, requisite that the lens should be specially corrected for this purpose. The immersion system was brought into use to overcome the loss of light due to the total internal reflection of a large amount of that which passed through the slide to the object. By the interposition of a medium of a higher refractive power than air, rays of considerable obliquity are collected, and thus help to increase the definition of the specimen.

Another factor influencing the resolving power of a lens is the wave-length of the light employed; it being greater for the actinic rays of the spectrum than for those of its opposite end. Consequently, we find a monochromatic blue better than the ordinary white light.

A very great desideratum is that the visual and chemical foci should coincide. Most modern objectives of fairly high power are specially corrected for photographic work. In the case of objectives of low power, it is advisable to ascertain the differences of foci by experiment.

For high-class work nothing can be better than the apochromatic lenses now in the market. They are corrected for three colours instead of two, as are the usual lenses, and their visual and chemical foci are coincident. In consequence of their extremely fine correction, their resolving and penetrating powers are much greater than those of ordinary objectives, and therefore they are especially valuable for photographic work.

As a general rule, objectives of high angular aperture, and giving the best results under ordinary circumstances, will be found most suitable for photo-micrography.

(To be continued.)

Practical Hints on Obtaining Pictures.—II.

By A. Horsley-Hinton.

(Continued from page 348.)

I prefaced my last article under the above heading by announcing my desire to be very simple and practical, intending my remarks and suggestions neither for him who may rank amongst the masters, nor yet the experienced student, to whom my communication may be as a tale twice told. I seek rather to point out some cardinal matters in the study of picture-making for the photographic beginner or for those who, by reason of other occupations or force of circumstances, have never given the question of pictorial excellence and artistic quality serious thought, and who are willing to accept a guiding hand and a hint by the way. I am not proposing to communicate anything new, nor even to present old truths in a new guise. I shall be quite content if I succeed in arresting attention to the particular subject in hand in such a manner that some of my readers who have perchance often heard the same things before, will try to put the advice into practice, and apply it to their own photographic work.

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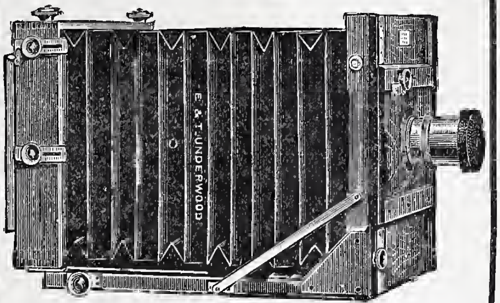

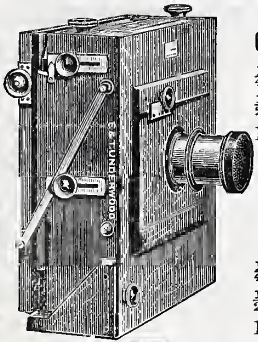

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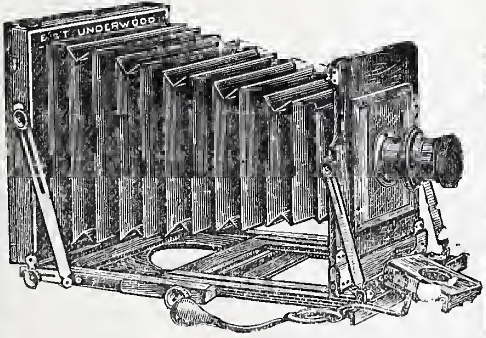

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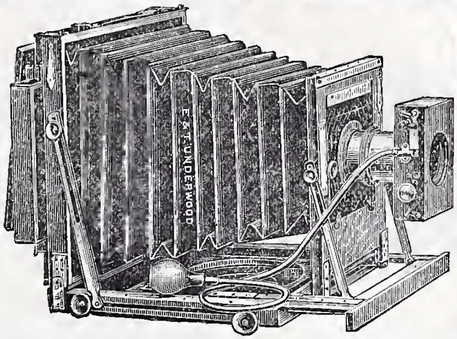

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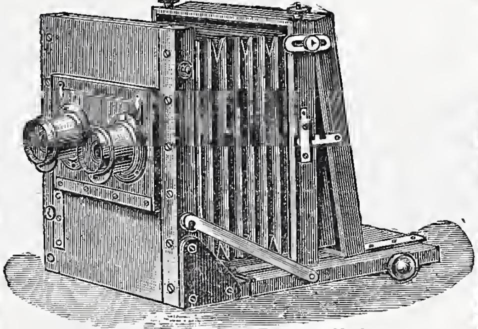

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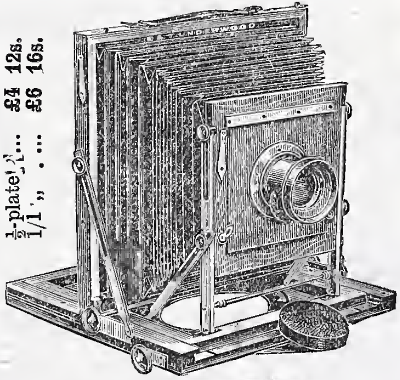

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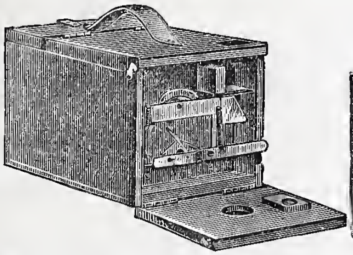

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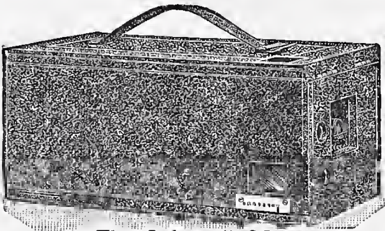

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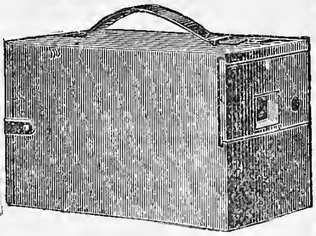

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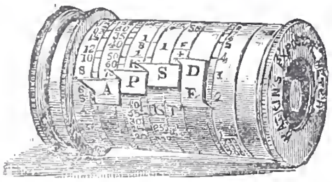

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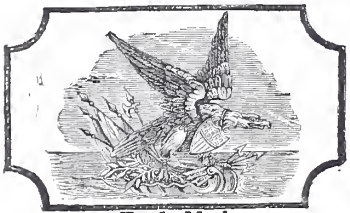

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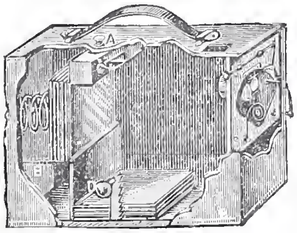

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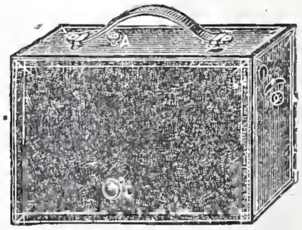

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To how great an extent the success of a picture depends upon the lighting of the subject has been pointed out times beyond number. Even the most casual reader of the photographic journals must be familiar with the subject, or with the so-called rules which some writers have attempted to formulate. And yet, notwithstanding this, notwithstanding that light and shade, the lighting of the sitter or subject, "tone," the position of the source of light, light and pictorial effect, etc., have formed the themes of discussion, the titles of essays, the texts of numerous papers, discourses, articles, and the like, still there are scores and hundreds of sincere workers in photography who never seem to grasp the teachings which they will readily acknowledge to be true; they never appear to profit directly by the counsel they honestly profess to value—it is all so much theory and good intention, easy enough at the society meeting and whilst leisurely reading the week's publications, but out in the field, under the fascinating influence of rural scenes and fair prospects, conscious of the camera's almost automatic powers, what becomes of all our acquaintance of contemporary teachings, and how little in actual practice do the premeditations and plans of but a few hours before influence the work or control the actions!

The force of habit, and the conventional tricks and methods of others seem to exert a seductive influence over the tyro which is little short of astounding, and the early student of pictorial photography would seem to be the most intractable and perverse variety of our species. I am, however, inclined to believe that a good deal of the profitlessness of the teaching is because of the unwillingness of many writers to reduce the poetical factors of artistic work to very plain language, and the difficulty which must always exist when one tries to reduce principles and methods which are by their very nature almost inseparable from exalted and advanced work to their veriest integrity, and the well-nigh impossibility of treating matters which are the result of cultivated and refined perceptions and instinctive taste in the same way as one would treat the elementary rules of a given mechanical course. Still, for some, such a reduction may be worth attempting, and so we proceed.

It is pretty generally known that until comparatively very recent times, and at such times when the complete and perfect photograph depended upon every consideration being subjugated to the utmost exemplification of those powers of light and chemical reaction which under the term photography were regarded as amongst the most marvellous of science's advances, it was invariably recommended that the source of light, particularly in outdoor work, should be immediately *behind* the operator, by which means the subject would receive full and equal illumination, and at the same time a bright day and a cloudless sky were to be regarded as the essential contributories to the photographer's happiness. Here then photography was everything, and effect—pictorial effect—was not thought of. Nowadays, however, it is very general, we might almost say universal, to employ photography for the production of what is too glibly called "a picture," and hence I need not apologise if all my remarks are only for those who thus and to this end employ their photography.

Let us see then what we mean by "pictorial effect." It surely needs no demonstration that every phase and aspect of Nature is not equally suitable for picture-making, that is to say, an exact likeness of every scene which presents itself to us does not as a picture please us equally and produce the same pleasurable impressions. We need not hesitate to accept as a principle the statement that Nature is not always picturesque. I am not here going to discuss the question whether Nature unaided—as in a looking-glass—is or is not ever desirable as a picture; it will be sufficient for my purpose to endeavour to show what aspects of Nature are more suitable and why, and in this chapter I will speak only of the lighting of our subjects.

Surely it is strange, considering what an important factor in our work the *light*, the nature of light, and its position is, that we concern ourselves so much about the quality of our plates, expressing strong preferences for this or that developer, and will even vex ourselves if we cannot get a particular maker's goods, and yet think so little and make so little study of one *light*. Perhaps it is because our chemicals, etc., cost money, whilst the all-essential ingredient light is obtainable in plenty—for nothing. Be this as it may, I ask my readers to study diligently this free gift of nature, which scientifically is so interesting, and which regarded artistically is the all-pervading source of sentiment and poetry, and origin of every sensation which nature in whatsoever aspect awakens in her admirers.

We may for the present, and for the sake of simplicity, regard our pictures as choice selections from nature, selected by the artist or photographer because they attracted him and appealed particularly to him, and we may also assume, at least for the present, that to the average taste nature is most appealing when by reason of strong contrasts or some circumstances out of the common, she is most strikingly attractive and produces, as we say, "a fine effect." (I say "for the present," and the "average taste," because a full appreciation of the quieter and more subtle beauties is the possession of but few, which few I am not addressing), and so I return to the proposal to inquire what it is that to the average mind most often seems to produce "pictorial effect."

It may be worth while to consider whether, from the fact of our photographs being devoid of variety of colour, there is not some need of stronger effects or greater contrasts, to compensate as it were for the distinctions which the differences of colour produce; any way, a scene devoid of any but the most trifling contrast strikes us as "flat" or monotonous, whilst the introduction of greater differences of light and shade is immediately felt to be welcome and desirable, and in common speech we say it gives "relief" and "life."

The mere experimental exposure of plates is, I fear, to most a trouble and an irksome task, yet I would suggest one experiment well worth making for the lasting lesson which it would give, and that is, to expose, say, three plates on the same subject, and from precisely the same spot at three different times of day.

Choose any convenient scene, and expose a plate at early morning, at noon, and, thirdly, a little before sunset.

On comparing prints made from these three exposures a great difference will probably be at once noticeable, doubtless more noticeable in some cases than others, dependent upon the nature of the scene chosen.

Suppose, for instance, we have chosen a scene which is in a westerly direction, so that in our first exposure the sun is full upon our subject, we shall find that the searching light makes every little detail of structure clearly visible; little things are seen, but great masses are lost, and seem merged one in the other—necessarily there are no great shadows; what shadows there are fall away from us, and are hence not seen; the very objects themselves intervene and obstruct our view of the shadows which they cast—also the shadows which are caused by protruding objects are not very strong, because the recesses and hollows themselves in shade reflect considerable light from the surroundings.

(To be continued.)

Liverpool (A. P. A.).—The excursion announced for Bolton Woods on 10th inst. having had to be cancelled, an outing to Bidston was hurriedly arranged in its stead. This took place on same day (10th). Seventy plates were exposed; two or three members were without cameras. The usual group was taken, and one or two used their hand-cameras "snap-shotting," the members at work in various strange attitudes. Altogether a most pleasant afternoon was spent in splendid, though rather hazy weather.

Angle of View.*

By P. Everitt.

If we examine the picture formed by a photographic lens upon a screen of sufficient size, we shall find it is circular. This circle is the base of a cone of rays transmitted by the lens. Divide this cone in the direction of its axis. The section is triangular, and the angle at the apex is called the angle of view. Let us suppose the focussing screen is square, and that the circle of illumination touches each side. A plate under such conditions would be unexposed at the corners. Yet, to calculate the angle enclosed by such a plate, we have been directed by the rules hitherto accepted to take the diameter of this circle as a factor. It is an astonishing fact that these rules have the sanction of a number of writers, amongst whom may may be mentioned Shadbolt, Grubb, J. H. Dallmeyer, Traill Taylor, Woodman, Emerson, and still more recently A. Haddon, the respected curator of this society.

To cover a plate such as has been described, it is evident the circle of illumination must enclose the plate, and not the plate the circle of illumination. We must therefore measure the diameter of the circle by the diagonal instead of the side of the plate. The perpetuation of the mistake is probably due to the habit, common amongst writers, to take data at second-hand rather than think them out for themselves. There are, however, two noteworthy exceptions. Dr. Eder, in his *Ausfuhrliches Handbuch der Photographie*, gives rules and tables for calculating the angle of view included by a lens, and for that included on a plate. For the latter he takes the diagonal as the basis. Professor W. K. Burton also estimates the angle of view by the diagonal of the plate, according to an article on the Concentric Lens in *Photographic Work*, February 24th, 1893.

Recently I criticised, before this society, the rules laid down by Mr. Haddon for calculating the angle of view included on a plate. They were published in the *British Journal Photographic Almanac* for the current year, and may be taken as correctly representing the rules of the writers first mentioned. These rules take the longer side of the picture as the base of the triangle enclosing the angle of view. You may follow the rules and work the problem correctly, but the answer will always be at variance with the facts. Either the angle will be too wide or the focus of the lens too short, when you take the photograph. We may also have a series of plates such as 15 by 9, 15 by 10, 15 by 11, 15 by 12, yet, by these rules, all will include the same angle, with the same lens, under similar conditions; or, if we wish to include a given angle from the same station-point, we must use a lens in each case of identically the same focus. Further, no matter what position the lens may occupy on the front of the camera, the angle will remain the same. Rules giving such results are evidently wrong, and, as a more rational system, I would suggest the adoption of the method used in perspective.

The circle of illumination of a lens corresponds with the base of the cone of visual rays. The lens is the eye and the picture plane is the photographic plate. These are corresponding terms in photography and perspective. The picture plane is vertical, and must not extend beyond the base of the cone of rays.

The angle of view in perspective is limited to sixty degrees, to avoid that exaggerated appearance with which we are familiar in pictures taken with wide-angle lenses. But, for the purpose before us, this may be disregarded, since what is true of an angle of sixty degrees is also true of any other angle. In perspective, if the picture plane touches the edge of the base of the cone of rays at any point, it is said to include an angle of sixty degrees, and, similarly, we may speak of pictures including any other given angle.

On the picture plane there are two important lines, the base line and the horizontal line; the base line is that upon which the picture rests, and the horizontal line extends from right to left at the height of the eye. Upon this line is the centre of vision, or centre of the circle forming the base of the cone of rays. The axis of this cone is called the principal visual ray, and corresponds with the focus of the lens.

The artist may select any portion of the base of the cone of rays for his picture, and the photographer does a similar thing when he moves the cross fronts of the camera in arranging the subject on the focussing screen. What, then, are the conditions which determine the angle of view for any given picture? First, the distance of the spectator from the picture plane, which, in photography, we may call the focus of the lens. Second, the position of the centre of vision, which, as I have shown, will vary according to the position of the lens on the front of the camera. To ascertain the position of the centre of vision, we must draw a line perpendicular to the plate from the apex of the cone of rays. Where the line touches the plate is the centre of vision, and we must measure the distance thence to the farthest corner of the plate. We can now measure the angle of view by means of the table of natural tangents given by Mr. Haddon, the rule for which should be stated thus:—

To find the angle, divide the distance from the centre of vision to the farthest corner of plate by the focus of the lens. Find the nearest number to this in the table of tangents, and twice the arc opposite it is the angle required; or, if we know the angle of view, and wish to find the focus, find the tangent opposite the arc, which is half the angle of view. Divide the distance from the centre of vision to the farthest corner of plate by the tangent. The answer is the focus of the lens required.

Mr. Haddon was unfortunate in the selection of the title of his article "Angle of View included on a given Plate by a given Lens." If the lens is not opposite the centre of the plate, the whole angle of view is not included. But the expression is permissible if we understand by it the angle under which the picture is taken. I mention this merely to draw attention to the fact which some may overlook, that the angle is different if the lens is moved by using either of the cross fronts. It must also be remembered that a lens can be used to cover a larger angle if the axial ray is not perpendicular to the plate, as pointed out by Mr. W. D. Debenham when this subject was last under discussion. But, as I have used the term angle of view in relation to the picture, and not to the lens, the rules I have given apply to the picture only. If it is required to calculate the angle covered by a lens under the abnormal conditions mentioned, the necessary modifiation must be made in the formula

* * *

The Royal Society.—The second *soiree* of the season, or the "ladies' night," was held on 7th inst. The President, Lord Kelvin, received the members and visitors. The display of exhibits was mainly that of the former *soiree* in May; but some of the late attractions came forward again in new garbs. Amongst these were some novel High Tension Experiments by Sir David Salomons and Mr. Pyke, illustrating various degrees of illumination produced in vacuum tubes of different degrees of exhaustion, as lighted by induction or by passing current. The most prominent of the novelties were the results, in many exquisite photographs, of the recent Solar Eclipse Expedition, notably those from South Africa and Brazil. These were displayed on the screen in the lecture-room, and explained by Professor Lockyer. Some of the photographs show the "Bailey's Beads"—a well-known effect—and this without any detriment whatever to the corona and prominences represented. A notable display was made by the Karakorum Mountain Survey Expedition of a fine map of the great glacier by Mr. Conway, and a number of water-colour drawings of the scenery in that great Kashmir range, taken at elevations of from 15,000 to 20,000 feet during the past year. Another display of interest was made by the Egypt Exploration Fund, consisting of drawings by the artists of the Survey during the past year. The President exhibited some very abstruse illustrations of the molecular conditions of crystals. Captain M'Evoy, who for so many years since the American Civil War has been a noted figure in torpedo and submarine mining work, contributed a novelty of singular interest and undoubted utility—the hydrophone. It has for its purpose the detection of surprise attacks at night or in foggy weather. The hydrophone is after the principle of the microphone, except that it has no carbon plate, and acts entirely by a very delicate loose contact which is set up by the vibration from the paddles or screws of vessels moving through the water. The instrument is enclosed in a strong cast-iron case and placed at the bottom of the sea in connection with an electric circuit. The vibrations are carried by the electric circuit to another delicate instrument on shore, the kinescope, furnished with two magnets and a needle, which is swung by the action of the vibrations until their effect is sufficient to bring the swing within reach of attraction by one of the magnets, when the needle is brought hard over and a relay put into action, with the effect that a bell is rung or a light shown—or, it might be, a gun fired—by this automatic watchman, thus telling of the approach of the enemy. So effective is the instrument, that the vibrations of the paddles or screws can be detected by it through the water at a mile or more away. In the Lecture-room also there was a display on the screen of a lantern stereoscope, the interesting invention of Mr. John Anderton. The images of a pair of stereoscopic transparencies were super-posed in the beams of light from two lanterns polarised in planes at right angles to each other. The picture on the screen being then viewed through a pair of analysers, complete stereoscopic effect is produced. Two pictures were posed marked distances apart, so much so that one of the animals appeared with eight legs, it was duly resolved through the analysers, by the action of the eyes, into the proper form of a four-footed specimen. Mr. Conway also showed a series of photographs of the Karakorum Mountains, in which the Pioneer Peak, 22,500 feet high, was a prominent example, and Gusherbrum, Masherbrum, and the Golden Throne illustrations of what are probably the highest group of mountains in the world.

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* Read before the London and Provincial Photographic Association.

Societies' Notes.

The attention of photographers in Nottinghamshire (amateurs especially), is drawn to the photographic survey scheme for Nottinghamshire, for which prizes are offered, open to anyone, subject to the competition rules. Full particulars may be obtained from Mr. John T. Radford, 3, Colville Villas, Nottingham. The following are the classes in survey work: vi., six photographs of street scenes in the borough of Nottingham: first prize, silver medal, Mr. Councillor A. Pyatt; second prize, certificate, the committee; vii., six photographs of Nottinghamshire Churches, three interior and three exterior: first prize, silver medal, the Hon. Sec.; second prize, certificate, the committee; viii., three photographs of buildings in the borough of Nottingham: first prize, silver medal, Mr. Councillor J. A. Green; second prize, certificate, the committee; ix., three photographs of Nottinghamshire peasantry: first prize, silver medal, Mr. A. Flowerdew; second prize, certificate, the committee: x., six photographs of places of interest in the County of Nottingham, not included in the previous classes: first prize, silver medal, Mr. G. H. Wallis, F.S.A.; second prize, certificate, the committee. Classes vi. to x. are open to anyone, either members of the club or non-members, subject to the competition and Survey Exhibition Rules of the club. All photographs either for exhibition or competition to be sent to the Hon. Sec. on or before December 1st, 1893.

Societies' Meetings.

Birmingham.—Ordinary meeting held on 30th ult., Mr. Mousley in the chair. Mr. Hendren gave his paper on "Christian Architecture in England," which was illustrated by sketches and diagrams on the blackboard. Mr. Hendren traced the evolution of architecture from the early Grecian times through successive stages to the Norman, where he paused intending to resume at an early date. A number of very fine photographs by the lecturer, which were shown in illustration of his remarks, were much appreciated. The audience found this lecture, dealing as it did with a vast subject, very instructive and entertaining. On 6th inst., Mr. W. Jones in the chair, Mr. W. J. Belton, representing the Paget Prize Plate Co., gave a demonstration of the firm's printing-out opals and lantern plates. The sensitive film is very similar to the familiar gelatino-chloride paper, and readily tones in the baths commonly in use with that class of paper. Mr. Belton allowed members to tone some opals and lantern plates already exposed, and the results, both in the combined and separate toning and fixing baths, were most beautiful; any shade of colour, from warm sepia brown to rich purple, being easily obtained. This demonstrates the simplicity of the process. A special printing frame is not absolutely necessary, as cardboard carriers can be used in an ordinary frame, but a very handy frame is made by the firm. The slides toned during the evening were passed through the lantern and very much admired, as were both the finished opals and lantern slides passed round.

Brixton and Clapham.—On 6th inst., Mr. W. H. Harrison in the chair, Mr. Fry gave a lecture on the "Sandell Plate." In describing the properties of the plates he said that they were made in two brands, the general with two films, and the especial with three. Each film was of a different rapidity, and possessed different physical and chemical characteristics, which were not due to the thickness of the film or the extra amount of silver. The multiple film combined the opposite characteristics of the lantern-plate and the snap-shot plate. The chief characteristics claimed for the plates are: (1) Advantages in hand-camera work; (2) great advantages in interior work; (3) they are a practical cure for halation; (4) they enable the worker to get better pictorial effect, *i.e.*, they are a better tool in the hands of the photographer; and (5) they are practically exposure proof. There is no difference in the rapidity of the two plates, the rapidity being in both cases that of an instantaneous plate, the second film being five to eight times slower than the top one, and the third five to eight times slower than the second. For hand-camera work there is no advantage in using the triple over the double coated plate. In an ordinary rapid plate the shadows block up in development, but in the Sandell plate the image is perfectly clear, and the lower film absorbs the light which in the ordinary plate is reflected by the back surface of the glass. For interior work they are superior to any ordinary plate. The image is formed on the three films, and although portions may be reversed on the upper films, such reversal does not affect the printing qualities of the negative. Halation is almost entirely absent, and the details in the high lights perfectly clear. Another feature is that the greater the exposure the rounder the image. For a normal exposure, that is, the correct exposure for the top film, development should proceed in the ordinary way, but for an abnormal exposure development should be tentative. Seek to obtain density on the lower films, and then get detail on the upper film. A strong fixing bath should be used. On no account should the film be stripped. At the conclusion of the lectures, questions were asked by Messrs. Butler, Kent, Dockree, Coade, Valentine, Shenton, Thomas, Harrison, and Conolly (visitor), and satisfactorily answered by Mr. Fry.

Leicester.—The first out-door excursion took place on the 9th inst., when about a dozen members and lady friends journeyed to Dovedale, and were favoured with beautiful weather both as regards the quality of light and absence of wind. The party met at the Midland station, being joined at Loughborough by some members of that Society, and booked for Derby, where, arriving about 9.30 a.m., they were met by Mr. Thos. Scotton and Dr. Highton, who joined the party. A break had already been chartered by the kindness of Mr. Scotton, and the party drove through most charming scenery a distance of eighteen miles to Dovedale, where the party entered the glorious dale, and operations soon commenced, the President clambering down the precipitous side of the cliff coming in for the first "snap." The difficulty was not so much what to take as how to avoid it, so many magnificent pictures presented themselves, and, drafting off in twos and threes, the excursionists wandered about in a paradise of pictures. Leaving the dale at 4.30, the party re-embarked and drove back to Ashbourne, where a welcome cold collation was done ample justice to, under the presidency and vice-presidency of the President (Mr. Porritt) and Dr. Highton respectively. Altogether about seventy-two plates were exposed, and it is confidently expected that they will yield some of the outdoor prize pictures for which the President has offered silver and bronze medals.

North London.—On 6th inst., Mr. Tanner in the chair, technical meeting. Mr. Grover intimated that the Sandell plate was doubtless a good plate when you knew it, but you'd got to know it first. He showed prints from a negative taken on one. Subject, the interior of a church; exposure, one hour in the afternoon; development took twenty-five minutes. Around the east window there was as much halation as he knew what to do with. After taking a print he rubbed down the density about the window, and the after-prints showed a great improvement. Mr. Bishop had again tried the Lomberg plate, this time for portrait work, and was much pleased with the working of them. Mr. Walker, referring to the latitude of exposure with single films, showed prints from negatives taken on Edwards's plates, backed with "anti-halation paper." No. 1 plate was exposed for twenty-three seconds (the normal exposure according to Watkins) and, immediately after, No. 2 was exposed for two minutes fifty seconds. Developed with pyro and ammonia. He could be happy with either, but perhaps preferred No. 1. There was very little difference in the prints. Mr. Bishop showed dark slides he had made of straw board and bookbinder's cloth. A piece of the board covered with black velvet fitted against the back of the plate. The slides were extremely light and effective, and very ingeniously made. Mr. Tanner recommended leatherette, a material used for covering furniture, instead of bookbinder's cloth. Mr. Tanner showed a good collection of prints from negatives taken at the trooping of the colours. Asked as to the necessity for obtaining permission to take photographs on the occasion, Mr. Tanner said he did not know if it was required. He used the *suaviter in modo* process, with the addition of a little free silver, and usually found that sufficient.

Nottingham (Mechanics' Institution).—The second excursion took place on 10th inst. The party met at the Midland station at 1.25 p.m., and travelled in specially reserved compartments to Alfreton, then took the picturesque route through the fields to Wingfield Manor, whose historic ruins are chiefly remembered as having once during its possession by the Earl of Shrewsbury been used as a prison for the ill-fated Mary Queen of Scots. On arrival tea was found to be ready, and was partaken of by the members and friends, numbering upwards of fifty, in the shade of the ruins, after which cameras were speedily in requisition. A short business meeting was held for the election of three new members, and it was decided, if possible, to arrange for a whole-day excursion on July 6th, either to Dovedale or Millersdale, a small sub-committee being appointed to arrange details. Votes of thanks to the Chairman and Secretary closed the meeting. About half-past seven the members started for a leisurely walk to Alfreton, where, through the kindness of the railway company, reserved compartments had been placed for the party on the 9 p.m. train to Nottingham, where they arrived about 10 p.m. after a very enjoyable outing.

Sheffield.—A meeting was held on 6th inst., Mr. B. J. Taylor in the chair, when after the usual routine business, the photographic exchange was effected, thirteen members taking part. The Secretary read a letter received from the Secretary of the Photographic Convention of the United Kingdom, asking whether it was the intention to send delegates to Plymouth, when it was decided not to do so, after which Mr. Sparham Camp gave a practical demonstration, subject "Printing on Rough-Surface Papers," showing the process of sizing, sensitizing, and fixing ordinary drawing-paper to produce a nice soft picture, which was fully appreciated by the members present. Several photographic novelties were exhibited

South London.—Ordinary meeting, 5th inst. Some work from samples of Lomberg plates were shown. The negatives given by these plates are of a very soft character, and are therefore particularly well suited for portrait work. In consequence of Mr. A. R. Dresser being taken suddenly ill, his paper on "Enlarging Hand Camera Negatives" was postponed. Some information on the use of Metol as a developer was given. It was found to have excellent keeping qualities. A developing solution left in a graduate for a week was capable of producing an image with ease. It did not stain, and would develop several plates in succession. Less exposure was required than with pyro. Over-exposure was readily dealt with. Density was more readily obtained with it than with Amidol, and it does not stain the fingers. Very fine transparencies were obtained by its use. Specimens of the "Uno" and "Queen" hand-cameras were shown, and placed in the hands of members by the manufacturers for trial, and report to the next meeting.

Staffordshire.—The monthly excursion took place to Knypersley, and from thence to Rock Cottage, Endon, where the members were hospitably entertained by Mr. John Slater, one of the Society's patrons. A very successful monthly meeting and annual show of apparatus and exhibition prints, together with the members' monthly competition prints, was held at Burslem on 7th inst.; the latest novelties in hand-cameras, lenses, shutters, accessories, mounts, etc., were on view. The following votes of thanks were unanimously passed: To the Editor of the AMATEUR PHOTOGRAPHER; Editor of *Photography*; Mr. Richard Keene, of Burton-on-Trent; and to the President, Mr. E. B. Wain, for loan of photographs to the exhibition; also to Uno Hand Camera Co., and Mr. T. Blackshaw, of Burslem, for loan of apparatus for exhibition.

Tooting.—Meeting held on 8th inst., Mr. Dollery in the chair. Mr. L. E. Morgan and Mr. V. Robinson were elected members. A whole-day excursion to Byfleet was agreed upon. Mr. Dollery gave a practical demonstration of the use of Cresco-Fylma, a preparation for stripping and expanding the gelatine film of a negative, transparency, or lantern-slide. Two quarter-plate negatives were successfully operated on. Mr. Dollery works according to the instructions given on the bottle, with the exception that he advises the use of tepid in preference to cold water in the second bath, as the film expands quicker. A transparency on an Alpha plate was then immersed in the solution, but it immediately faded away. At the desire of those present the process was carried out to ascertain the greatest amount of enlargement that could be obtained. Mr. Child, on examining the film, which was of a dirty yellow colour, drew attention to the fact that the image was still intact and perfect, presenting an appearance similar to that obtained by the bichloride of mercury bath. He recommended that the hydrokinone developer should be tried with a view of reducing the compound that evidently had been formed. Mr. Berger agreed with this view, and said that no details were wanting in the picture. The suggestion was acted upon, and with complete success, the image redeveloping up slowly but yielding a vigorous picture. The only difference was that before treatment the tone was of a greenish-black, but afterwards a warm sepia. This change was no doubt due to a constituent of the Cresco-Fylma, as the film was unwashed.

* * *

SOCIETIES' FIXTURES.

June 15—ASTON.—Paper by Mr. Delicate.
" 15—HARRINGAY.—Social Evening.
" 15—NORTHAMPTONSHIRE.—Excursion to Turvey.
" 15—NEWCASTLE-ON-TYNE.—Out-door meeting at Ripon and Fountains Abbey.
" 15—NORTHERN PHOTO. AND SCIENTIFIC ASSOC.—Mr. Coulter will deliver a lecture on The Chemistry of the Dry Plate.
" 16—HOLBORN.—Mr. S. Herbert Fry will attend and demonstrate with the "Sandell Plate."
" 17—BRISTOL (Camera Soc.).—Excursion to Henbury.
" 17—PHOTOGRAPHIC CLUB.—Excursion to Otford.
" 17—MANCHESTER.—Ramble to Gainsworth and Marton.
" 17—LEWISHAM (Camera Club).—Outing to Wanstead Park.
" 17—LIVERPOOL.—Excursion to Windermere.
" 17—CITY OF LONDON COLLEGE.—Excursion to Caterham.
" 17—BOLTON.—Excursion to Rostherne.
" 19—SOUTH LONDON.—"Angle of View," Mr. P. Everitt.
" 19—RICHMOND (Camera Club).—Informal Meeting
" 20—BIRMINGHAM.—Mr. Hendean will continue his paper on "Christian Architecture in England."
" 21—PHOTOGRAPHIC CLUB.—Carbon Printing demonstrated.
" 21—MANCHESTER.—Ramble to Arley and Great Budsworth.
" 21—EASTBOURNE.—Excursion to Hillingley.
" 21—NORTHERN PHOTO. AND SCIENTIFIC ASSOC.—Lecture on "The Chemistry of the Dry Plate," Mr. Charles Coulter.
" 23—HOLBORN (Camera Club).—Lantern Night. South African Slides.
" 24—HUDDERSFIELD.—"Natural History in Education," by S. L Mosley, F.E.S.
" 24—BRISTOL (Camera Soc.).—Excursion to Temple Church.
" 24—SOUTH LONDON.—Excursion to Hampton Court.
" 24—WEST LONDON.—Excursion to Wimbledon.
" 24—ROCHESTER.—Excursion to Luton and Hook and Hatchet.
" 24—MANCHESTER.—Ramble to Chester.
" 24—PAISLEY.—Excursion to Mauchline.
" 24—LIVERPOOL.—Excursion to Ingleton.
" 24—LEYTONSTONE.—Excursion to Greensted Church and Ongar.
" 24—OLDHAM.—Ramble to Lostock Gralam for Great Budworth.
" 24—ASHTON-UNDER-LYNE.—Excursion to Bakewell for Monsal Dale.
" 24—BIRMINGHAM.—Half-day Excursion to Stoneleigh.
" 24—CROYDON.—Excursion to Edenbridge.

To Correspondents.

All communications for these column are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume.*
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer Questions by post.

QUERIES.

6109. **South of Ireland.**—What would be the best way of spending a holiday here? Will any reader inform on this matter, giving names of hotels, etc., and where plates can be exchanged?—HAZEL.

6110. **Negative Exchange.**—Would any one exchange exposed plates, quarter-plates (not developed)? Address with Editor.—J. R. B.

6111. **Killarney.**—Information as to photographic haunts in and around Killarney, and lodgings obtainable will oblige?—E. GARNER.

6112 **Print Exchange**—Would any one exchange unmounted prints, quarter-plate? Address with Editor. —J. R. B.

6113. **Prestatyn.**—Has any one stayed here? Are lodgings cheap, and are there any good views to be had? All information gladly received.—S.

ANSWERS.

6086. **Developer, etc.**—The following is a good, reliable mixed eikonogen and quinol developer:—

A.

Hydroquinone	80 gr.
Eikonogen	120 "
Potassium bromide	30 "
Sodium sulphite	2 oz.
Water, up to	20 "

B.

Sodium hydrate	100 gr.
Water	20 oz.

For use, equal parts of A and B.—WYNFORD.

6103. **Norfolk Broads.**—Should advise Mr. Briggs to purchase a copy of "The Land of the Broads," 1s., published by Upgott Gill, Strand, London. He will find therein all the information he requires. The most picturesque of the rivers and broads are Fritton Decoy (Suffolk), Ormesby Broad, Wroxham Broad, and River Bure from Horning Ferry through Wroxham, Coltishall to Aylsham, which will afford a splendid hunting ground for the photographer. All the above mentioned broads and rivers are in easy access from Great Yarmouth. If the querist is starting from Yarmouth he will be able to get plates, etc., also above mentioned; book from G. T. Davis, 4, Market Place (near Parish Church), where a dark-room is provided for visitors' use.—S. E. T.

6103. **Norfolk Broads.**—You had better start from Wroxham, and get one of Loynes' boats; they are the best, and sail down the river. Salhouse Broads, both big and little, are very pretty, especially the latter, and then Horning Village and Horning Ferry are worthy of a plate or so each. Then at Ranworth, and farther on at South Walsham, you could use a dozen plates, and get a good picture on each. Up the dykes, too, that run off the river, numberless pretty bits are to be found. Hickling is very pretty, in spite of its flatness, especially at the village end of the broad. Above Wroxham, Wroxham Village, Belaugh, and Coltishall would provide you with plenty of pictures. Plates can be got at Norwich. I don't think they can be had at any place nearer to the broads. You had better take all you mean to use with you, or you will probably run out of plates just when you need them most. If you want any further particulars, I shall be very pleased to give them.—G. S. W.

6104. **Toning and Fixing Bath Combined.**—Should try my method, which requires no gold. Formula as follows:—

Water	1 pint.
Hypo	4 oz.
Acetate lead	½ "
Carb. soda (*i.e.* common washing soda)	¼ "

Boil the water, and while still warm put in the chemicals, adding any odd strips of sensitised paper. Ready next day. This gets better as it gets saturated with the silver from paper toned. The best way is to use one half of the solution, and add some from the other as required to make up the half pint. Print sent for Editor's opinion.—W. BEYER.

6107. **Bubble Marks on Prints.**—"Belinda's" troubles will cease regarding the bubbles marking paper, if she will use plenty of water, not shake off any. There should be enough to float the paper on the glass or plate, then apply the squeegee, and then if there are any air-bubbles go over the wetting again. You can facilitate the drying by placing several thicknesses of blotting-paper on, and carefully pressing it all over.—W. BEYER.

6107. **Bubble Marks on Prints.**—To avoid bubble marks on prints, first shake off all superfluous water, then place the print *lightly* face downwards on the glass ; remove it again, *and rub the glass dry ;* repeat this operation, and then squeegee finally down. No bubble marks will be seen on the print when it is peeled off —H. G. BABINGTON.

6105. **Thiotone.**—Mr. Langton can procure Thiotone from Messrs. G. Wright and Co., 97, Manchester Road, Hopwood, Lancs. ; post free 2s. 9d. If he uses it according to instructions he will find it answer very well. I have used it for some time now for Solio, and like it I use the bath over and over again, only add a little Thiotone each time.—B. H.

QUERIES UNANSWERED.

May 5.—Nos 6065, 6066, 6067, 6068.
„ 12.—Nos. 6071. 6072, 6073, 6075, 6076.
„ 19.—Nos. 6077, 6078, 6081, 6082. 6084, 6085.
„ 26 —Nos. 6088, 6089, 6091, 6094, 6095.
June 2.—Nos. 6097, 6102.
„ 9.—Nos. 6106, 6108.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

CAMBRIENSIS.—1. The only trouble likely to arise from the chalky water is if the chalk settles on the film and sticks there, but if you filter the water it would do no harm. 2. Instantaneous may mean anything from ¼ to 1-1,000th of a second ; it is usually confined to such pictures as are taken with a shutter, in opposition to those taken with a cap exposure. 3. Aristotype prints should be washed before toning, but if you place the prints into a solution of salt and water, about 1 to 20, and after five minutes' stay in this, and a good rinse for another five minutes in clean water, no other washing is necessary.

WYNFORD.—Lancaster's Omnigraph, with an extra changing-box, is about your figure, and the best you can do.

C. E. C —We are always willing to give advice and criticism to any reader on prints, negatives, etc. We send you entry forms for monthly competitions to September, with full instructions and details, and you will find elsewhere a note as to our big annual competition, "Photography at Home."

ERA.—The Prize Album is now ready and issued ; do you want one? Annual lantern-slide competition forms not ready yet ; please apply again. You need not trouble about the slight colouration in your pyro solution, it is perfectly harmless.

T. HALL. — Depth of focus is dependent on the length of focus and aperture. The shorter the focus of lens, and the more it is stopped down, the greater the depth of focus. You can, therefore, only obtain greater depth by stopping down more. The longer the focus of the lens the larger your distant objects appear, therefore a long-focus lens would be of assistance to you in this respect, but unless, on the other hand, you stop down well, there will not be much depth of focus.

1. R. B.—We cannot possibly institute anything else just now, though we may be able to later.

E. B. H.—1. Not improved by the vignetting, and both sky and water too white. 2. Wants clouds, and water too white. 3. Good. 4. Under-exposed on the left amongst the reeds. 5. Spoilt by vignetting, and wants a little something to give it life. 6. Vignetting again, wants clouds, and not sufficient interest in it. 7. Vignetting again ; cut an inch off left hand of print, print in clouds, and soften whiteness of water, and you will have a good thing. Your great fault is vignetting, which is rarely suitable to your subjects, and your negatives are too harsh and give too much contrast. Let us know how you work, plates, developer. etc , and we can give you some hints probably. You would probably be put in Class II. in our competitions.

G. S. P.—Thanks very much for your letter, and we are glad you like the Album. We see no reason why you should not compete, we certainly debar well-known prize-winners from competing, but not such as you, who may have merely scored at local exhibitions.

PUZZLED.—You have omitted to state one or two important items, and that is, whether the veiling occurs on the addition of more accelerator, and, secondly, as to your dark-room light. Try the following, however, and if you fail expose two plates and send them up to us. Choose a medium rapidity plate, such as the Barnet, Cadett of H. and D. number about 95. an Ilford rapid ; stop your lens down to f/16, and give 1-25th sec. For developer use—

Amidol dry	... ...	5 gr.
Sodium sulphite	... ...	25 „
Boiled water	... ...	1 oz.

Apply to the plate and rock the dish ; the image should quickly make its appearance, and development may be continued till all detail is out but density is lacking ; if development hangs fire add 2½ grains of sodium sulphite with ¼ grain potassium bromide, and, finally, to gain density you can add 2½ grains of Amidol, but we prefer to get all the detail out by this method, wash and fix, and then intensify afterwards.

E. GARNER.—We do not want prints back, thank you. For changing in the field try Beresford's new Paragon changing bag, notice on p. 331 AMATEUR PHOTOGRAPHER, May 19. This is very convenient and safe.

E. E. S.—Print up to standard of Class 1., but would be better on rough-surface paper. The tone is not very pleasant, as there is a suggestion of pinkiness about it. You are still an amateur, and eligible to enter any of our competitions.

WM. DUNSMORE.—The best thing you can do to your negative is to make a transparency by contact from it on a slow lantern emulsion or a chloride transparency plate, and from this a second negative. By careful exposure and development you might thus get rid of the foggy effect. Another plan would be to reduce with hypo and ferridcyanide till the fog disappears, and then intensify again. The former plan is preferable, as if the latter is not satisfactorily and carefully carried out the negative is totally lost.

A. CREASY.—We cannot recommend the washer you name if economy of water is any object. Your best method of procedure will be to place the prints as they come from the hypo face downwards on a sheet of glass, and with a squeegee take off all the superfluous hypo solution, then place them in a dish of water for ten minutes, take out, place on the glass, squeegee again, and repeat the operation about six or nine times.

G. HAWKER.—There is not the slightest objection to your using the camera you have for stereoscopic work, and if you send it to Chadwick, 2, St. Mary Street, Manchester, he will fit a new front, and supply a pair of lenses and internal division for a reasonable sum. The foci of stereo lenses may be 3, 5, or 7 in., and we should prefer 5 in.

G. WAGER.—1. There is no reason why you should not be able to take the group you want with your lens, as you will find that nearly all lenses possess curvature of the field, which would necessitate arranging the members of the group on a circle, so as to get the side sitters in focus. 2. You could hire a lens from Sands and Hunter, 20, Cranbourn Street, or the City Sale and Exchange Rooms, 53, Lime Street. 3 The only thing to do to include yourself in the group is to leave a space so that you step into it ; arrange your group, leaving space for yourself focus, only stopping down just sufficiently to get satisfactory definition, then set your shutter, withdraw the shutter of dark slide, place yourself in the group, and having affixed sufficient indiarubber tube to your shutter, press the ball and give the correct exposure. 4. We should advise you to use the special rapid plates, as likely to give better results. The exposure would be between 11 and 1 at this time of the year, with sun shining, but not actually on the group, f/16 stop, and special rapid plate about ½ second.

W. E. A.—Provided you wash your prints well you can tone Solio and P. O. P. in the sulphocyanide bath with good results.

TAUNT WIGAN.—1. Insufficiently printed, or else too strong a gold bath was used, the print looks eaten out. 2. This, on the other hand, is printed too deep.

MEGILP.—Brodie and Middleton, of Long Acre, publish a little 1s. book on the subject, and Barnard's also publish one. Hepworth's "Book of the Lantern" has a chapter devoted to the subject.

F. H. READ.—1. We should use an instantaneous isochromatic plate, the largest stop that would give satisfactory definition all over the screen, and use either a Todd-Forret or "Optimus" magnesium lamp, giving about as long an exposure as possible. 2. You will find on p. 313, May 12th, a bath for black tones which may suit you.

BELMONT.—We plump for No. 3.

ISIS.—Will you please send us up some prints, toned and untoned, and we will tone for you, and send you the same back to look at. What tone do you want?

R. S.—The process used by peripatetic photographers is the wet collodion process. Percy Lund and Co. publish "The Practical Ferrotyper," which is just what you want ; we hope to start next week a series of articles on the subject.

J. B.—The orange colour points rather to insufficient washing. Try giving the plate a soaking in acid alum before rehalogenising, and write us again.

R. W. S.—We have repeated query.

R. TUSON.—1. Camera too low, printed a little too deep. 2. An uninteresting foreground, and the boat is lost in the dark background. To enamel prints, wax a sheet of glass, and place the wet print face down, squeegee, allow to dry, and strip.

ONE FOGGED.—(1) Probably all your instantaneous exposures were too short ; this seems almost proved by the fact that when time exposures are given you get density. (2) Dropping the lens possibly started the balsam cement which makes the two glasses adhere, and thus gave rise to the iridescence, and lapse of time and the warm weather have caused it to set again. (3) Mix equal parts of strong nitric acid and water, and use with a hard nail or pot brush, or else use Brooke's Monkey soap. (4) Short-focus lenses possess far greater depth of focus, the image is smaller, and there is therefore less displacement of a moving object, and therefore the shutter need not work so quick, and finally a hand-camera with a 10in. lens would be of large size and heavy too. (5) Use either amidol or metol. You will see a letter in this issue about it, and we have had a lot of articles on them in the last few months.

J. R. H.—(1) If the spots appear only in the fixing bath they are probably caused by small particles of iron or other metal floating in the water. Boil your water and filter your solution. We presume you do not use metal dishes for developing or fixing in. (2) A good formula would be—

Pyro	.. ..	1 oz.
Sodium sulphite	.. ..	4 „
Sulphurous acid	.. ..	¼ „
Water, to	.. ..	10 „

Dissolve your sulphite in water, add the acid, and pour on the pyro. This solution should be colourless. (3) Although your solution should be colourless the brown tinge, unless very deep, will not matter.

GLAZE.—Wormald and Co., of Sutton, Surrey, have introduced special compressed pulp boards which can be used for enamelling, and you would find the enamel would not strip from them.

C. PELLEW.—The only fault with your yacht prints is that you have got the deck too dense, consequently you have lost in detail. There is no reason why you should not print deeper and get better results. (1) Slightly too harsh ; note the want of detail in steps. (2) Very good. (3) Here again you have a slight tendency to hardness. (4) Good. We should advise you to weaken your developer somewhat so as to get softer results. Considering the short time you have worked, your results are very good. We are glad you like the "Annual." We thought it was worth the price.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence***, *Every additional* ***three words, one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one word****; compound words count as* ***two words****.)*

DEPOSITS.—*Money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge 1s.*

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, *1, Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR, AMATEUR PHOTOGRAPHER, *1, Creed Lane, London E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.***, *or a commission of* ***2½ per cent.***, *upon the sale price of the apparatus.*

Cameras, etc.—Whole-plate camera, two double slides, new, £4, description and photograph by post.—Padgham, 67, Paynton Road, Hastings.

Tourist superior whole-plate camera, all latest improvements, equals new, three double slides, two sets high-class lenses, bargain.—Adams, Stanford, Faringdon.

Samuel's whole-plate camera, one double slide, perfectly new, never used, cost £7 10s., price £3, will forward by registered post on receipt of postal order. Suitable for lady or tourist.—A. B., Colville House, Carlton, Lowestoft.

Half-plate Rayment camera, parallel bellows, extending 18 in., all movements, three double backs, mahogany telescopic stand, cost over £8, good as new, £4 15s.—Rev. J. O. Gooch, Redhill, Surrey.

Whole-plate long-extension camera, one double slide, all movements, nearly new, £4.—S. Smith, 17, King's Place, Portman Square, W.

Cameras, Lenses, etc.—Geo. Hare's patent long-extension Spanish mahogany tourist camera for 10 by 8 plates, with three double dark slides and carriers for 8½ by 6½ plates, fitted with Ross's patent rapid symmetrical lens. The whole in perfect condition and equal to new; cost £22 10s., to be sold for half price, £11 5s.—Apply, W. Burrows, High Pavement, Nottingham.

For sale. Rouch's best 8½ by 6½ bellows-body camera, with four double dark slides and one single ditto, and tripod, three lenses, Ross's 10 by 8 rapid symmetrical, Ross's No. 6 portable symmetrical, Rouch's best 10 by 8; cost £25, take £16.—App'y, R. Hanna, 13, Trinity College, Dublin.

Lancaster 8 guinea enlarging apparatus, without lens, in good condition, £4.—Lawson, L.A.P.A., Eberle Street, Liverpool.

Quarter Lancaster's Le Merveilleux, camera, lens, slide, tripod, 15s.—Bensley, 20, Oxendon Street, S.W.

Marlow's Excelsior quarter-plate camera, double extension bellows, splendid lens, four double backs, tripod, all in good condition, 45s.—William Winch, King's Lynn.

Dark Slides.—Instantograph, three perfect half-plates, 6s. 6d. each, approval.—Adams, Hermitag Mews, South Tottenham, N.

Enlarging Apparatus.—Enlarging or reducing apparatus, either day or artificial light, lantern size to 18 and 22. Two sets of carriers complete. The whole in new condition. Specially made to order in January last, and not been used half a dozen times, cost six guineas, sell for £4, can be seen at Adams and Co., Charing Cross Road.—Address, Medico, office of this paper.

Hand-cameras, etc.—Two Talmer hand-cameras fitted with large finders, good lenses.—B., 10, Eglantine Road, Wandsworth.

Adams' Ideal hand-camera, Wray's lens, new January, cost £8 10s., sell £6 10s., approval, deposit.—A. D., 25, Carter Lane, E.C.

Kodak No. 2, £4.—15, Grove Avenue, St. Ann's Hill, Wandsworth.

B daylight Kodak, twenty-four exposures, cost £3 5s., 40s. as new.—Bensley, 20, Oxendon Street, S.W.

Lantern, etc.—Optimus lantern, Russian iron, powerful four-wick lamp, as new, £2 lowest. Or exchange quarter camera three slides, by good maker.—Muller, High Street, East Grinstead, Sussex.

Lenses, etc.—Whole-plate rapid rectilinear lens, covers 9 by 7, 10¼ in. focus, very fine lens, best condition, 31s., on approval, deposit.—E. D., 19, Ladbroke Grove Road, London.

Lens and shutter, half-plate Lancaster instantograph, splendid order, 25s.—McCormack, 3, Bath Street, Glasgow.

Lancaster's half-plate combination rectigraph lens, iris diaphragm, will exchange for good quarter or 5 by 4 magazine hand-camera.—Murray, 5, Montrose Terrace, Edinburgh.

Lancaster's half-plate instantograph lens and shutter, iris diaphragm, new, 21s.—Holoran, 19, Talbot Place, Sheffield.

Quarter-plate R.R. lens, splendid definition, 20s.; half-plate Automatique shutter, time and inst., 15s.; violoncello, bow and baize bag, complete, 25s.—William Winch, King's Lynn.

Crouch's rapid rectilinear fitted with Newman and Guardia's shutter, nearly new, cost £5, accept £3 10s. Approval.—Barton, Eastlaithgate, Doncaster.

Second-hand, cheap, two Lerebours' half portrait lenses, Grubb's quarter rapid portrait, Grubb's 10 by 8 view, Tench's 12 by 10 doublet.—Walker and Co., 8 and 9, Broad Street, Bath.

Very fine rapid rectilinear 7 by 5 lens, Waterhouse stops, removable hood, perfect, scarcely used, f/8, splendid definition, 21s.—Miss Summers, Hilleeley, Glos.

Half W. A. rectilinear lens, iris diaphragm, f/8 to f/44, fine definition, new, 32s. 6d.—Bensley, 20, Oxendon Street, S.W.

Shutters.—Quarter and half plate instantaneous shutters, 4s. 6d. each.—50, Upper Berkeley Street.

Sets.—Complete or partial whole-plate set, for studio or field.—Address, Bale, Meopham, Kent.

Quarter-plate outfit, cost £5 5s., well made, four slides, frames, dishes, etc., £2 2s., or exchange with cash for half or 5 by 4 outfit.—Scrase, 10, Doddington Grove, Battersea.

Lancaster's quarter instantograph—lens, shutter, tripod, three double slides, three printing-frames, dishes, waterproof case, strong box, perfect condition, 42s.; also 52 in. bicycle, cost £12, balls everywhere, splendid condition, 35s.—J. C. Gisborne, Alexandra Park, Nottingham.

Camera, 7½ by 5, swing-back, rising front, three home-made double dark slides, thoroughly light-tight, whole-plate landscape lens, stops, superior canvas knapsack case, two printing frames, price 50s.—Roddick, 13, Mentone Terrace, Edinburgh.

Half-plate set. Lancaster's instantograph camera, lens, shutter, tripod, three double slides, and sundries, £4 10s., a bargain, equal to new. Particulars sent or inspection given.—G., 110, Rosebery Square, Rosebery Avenue, E.C.

Half-plate camera by Lane, complete with backs, tripod, Dallmeyer's R.R. lens, frames, dishes, etc., for printing, price £7 10s.—Taylor, Clarence Villas, Savile Town, Dewsbury, Yorkshire.

Half-plate Lancaster's Le Meritoire camera, three double dark slides, lens, stand, and case, 70s.—Hovenden, Stainfield, Bourne.

Underwood exhibition camera brass bound, stand, bag, three double dark slides, lens, shutter, and cover, nearly new, cost £10, price £6, deposit.—H. Braithwaite, Great Clifton, Workington, Cumberland.

Lancaster's quarter instantograph camera, perfect with lens, shutter, tripod, one wood double back and two Tyler's metal double, price 30s., carriage paid.—Harrison, 84, Park Street, Darlington.

Quarter-plate brass-bound Lancaster camera, four double backs, rapid rectilinear lens, mahogany stand, leather bound case, cloth, etc., splendid condition, 60s.—F. Cole, 184, Queen's Road, Dalston, N.E.

Sundries.—Cockatoo, large, exchange for lantern or photograph material.—McCormack, 3, Bath Street, Glasgow.

Seventy AMATEUR PHOTOGRAPHERS, up to present date, few missing. Instantograph stand, good condition, what offers?—S., 17, Hope Place, Liverpool.

Tripod.—Four-fold ash tripod, 14s., leather case, 3s., as new.—Bell, Martello, Rugby Road, Belfast.

WANTED.

Cameras, etc.—Wanted, 12 by 10 double extension camera, with three or more double dark slides, all latest improvements, and in good condition, cheap for cash.—G. Budge, 174, Brompton Road, S.W.

Wanted, quarter square camera, dark backs, neither lens, tripod, cheap.—Banks, 67, Walton Street, Oxford.

Dark Slides.—Wanted dark slides, half-plate, for Lancaster's instantograph.—A. Spink, Perlethorpe, Newark.

Hand-cameras, etc.—Good hand-camera required, 5 by 4 twin lenses preferred.—Lewis, Commerce House, Carmarthen.

Wanted, hand-camera, good maker, cheap.—E., Anglesey House, Goole.

Lenses, etc.—Wanted, cheap, Ross or Dallmeyer's 8 by 5 rapid rectilinear.—50, Upper Berkeley Street.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bijou Enlarging Lantern.—Patent rectangular or square condensers used by Van der Weyde and other eminent photographers, reduces size nearly half; portable, unique, scientifically constructed, beautifully made, and optically correct.

Bijou Enlarging Lantern is the only perfect enlarger, high-class lenses and workmanship.

Bijou Enlarging Lantern, new design, take negatives all sizes, gives uniform illumination. Every amateur and photographer should possess one. Gives universal satisfaction. Enthusiastic testimony everywhere. Prices with or without objectives sent on application. Cheapest and best. Hughes, Brewster House, Mortimer Road, Kingsland, London, N. Before purchasing any lantern get our grandly illustrated Catalogue, a surprise when seen; over 180 choice wood-blocks of the finest and cheapest instruments extant, 6d., postage 3d.

Bargains in Cameras and Sets.—Whole-plate finest Spanish mahogany camera, by Civil Service Stores, square leather bellows, rising and cross front, swing and reversing back, back extension, fitted Laverne's rapid rectilinear lens, Sergeant's patent time and instantaneous shutter, three double book-form slides, canvas case, stand, etc., £7 17s. 6d.; Underwood's whole-plate Exhibition camera, double extension, leather bellows, rising and cross front, wide-angle movement, fitted two double dark slides with carriers, Underwood's R.R. lens, iris stops, instantaneous shutter, finder, turntable, four-fold stand, and waterproof canvas case, £8 5s.; Underwood's whole-plate Field camera, double extension, leather bellows, rising front, reversing and swing back, wide-angle movement, width when closed 2 in., fitted very fine rapid rectilinear lens, iris stops, double book-form slide, folding stand, and canvas case, £7 5.; half-plate Spanish mahogany camera by Middlemiss, double extension, best leather bellows, rising front, reversing and swing back, front and back extension for wide-angle, fitted three double slides, Leviathan rapid rectilinear lens, iris stops, works f/8, three-fold sliding tripod and case, as new, £6 5s., worth double; half-plate Optimus rapidograph camera, double extension, best leather bellows, reversing and swing back, rising and falling front, fitted three best double book-form slides, metal divisions, clips and catches, Laverne's best aluminium rapid rectilinear lens, iris stops, works f/8, three-fold ash tripod and case, warranted as new, £7 17s. 6d.; Lancaster's half-plate Instantograph, fitted Lancaster lens, instantaneous shutter, two slides, and folding stand, £3 17s. 6d.; Lancaster's ¼-plate special brass-bound Instantograph, double extension leather bellows, swing back, etc., three Tylar's medal and one mahogany dark slides, fitted Lancaster lens, iris stops, and see-saw shutter, and folding stand, £2 5s.; quarter-plate Spanish mahogany by Lawley, square leather bellows, double extension, rising and cross front, swing and reversing back, three double book-form slides, fitted rapid rectilinear lens by Laverne, Waterhouse stops, folding stand, and solid leather case, £4 17s. 6d. **All above sets guaranteed as described in every detail. On view, City Sale and Exchange, 54, Lime Street, corner Leadenhall Street, City (late Goy's Modium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.**

Bargains in Hand Cameras.—London Stereoscopic Company's twin-lens Artist hand-camera, fitted Black Band lenses, Waterhouse stops, works f/6, adjustable focus, full-size finder, three double dark slides, in solid leather case, £11 5s.; Adams' No. 2 Ideal, fitted Wray's rapid rectilinear lens, time and instantaneous shutter, adjustable focus, two finders, carries twelve quarter-plates, covered morocco leather, finest condition, £7 5s.; Houghton's Shuttle hand-camera, fitted rapid rectilinear lens, time and instantaneous shutter, two finders, adjustable focus, carries twelve quarter-plates, covered morocco leather, as new £5 5s.; King's twin-lens hand-camera, fitted Adams' Ideal rectilinear lenses, adjustable shutter, full-size finder, focussing, carries 12 quarter-plates, covered morocco leather, £3 17s. 6d.; No. 2 Kodak, fitted R.R. lens, time and instantaneous shutter, finder, carries 100 films, covered leather, in solid leather case, £3 17s. 6d.; B. Daylight Kodak, fitted R.R. lens, time and instantaneous shutter, finder, carries 24 films, covered leather, in solid leather sling case, £2 12s. 6d.; Watson's 5 by 4 hand-camera, Watson's rapid rectilinear lens, iris stops, roller blind, time and instantaneous shutter, adjustable focus, four double slides, two finders, covered real leather, finest condition, £5 17s. 6d.; Ariel hand-camera, leather bellows, fitted Wray's 5 in. R.R. lens, rotating stops, Thornton-Pickard shutter, three double book-form slides, finder, complete in case, as new, £5 10s. **All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.**

Bargains in Lenses.—Wray's 18 by 16 narrow-angle landscape lens, Waterhouse stops diameter of lens 3¼ in., focus 25 in., condition as new, £4 4s.; Wray's 9 in. wide angle rectilinear, suitable for whole-plate to 12 by 10, iris stops, quite new, £4 10s.; whole-plate Ross's rapid symmetrical lens, fitted Waterhouse stops, grand definition, covers well, focus 10½ in., good condition, £4 15s.; Optimus 3B quick-acting portrait lens, fitted Waterhouse stops, works f/4, focus 10 in., diameter of lens 3½ in., condition as new, £7 12s. 6d.; 8 by 5 Grubb aplanatic doublet lens, fitted Waterhouse stops, works f/8, best condition, £3 15s.; 7 by 5 rapid rectilinear lens, by Laverne, works f/8, movable hood, grand definition, covers well, as new, 27s. 6d.; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s.; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works f/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s.; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works f/8, movable hood, as new, 45s.; Laverne quarter-plate wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B), Waterhouse stop, rack focussing, condition as new, £3 17s. 6d., cost £6 5s. **On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.**

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

IMPORTANT NOTICE TO AMATEURS.—Developing, Printing in any process, Retouching, Bromide Enlarging and Finishing, etc., executed with the *utmost* promptitude, and the very best results obtained. Work called for (if in London) on receipt of card. New Pr[illegible] List now ready. Only address:—WILFRED EMERY, 24, SOUTH STREET, BAKER STREET, W.

The AMATEUR PHOTOGRAPHER

Telephone No. 1645
Telegraphic Address: VINEY, LONDON
Offices. 1, Creed Lane, Ludgate Hill, London, E.C.

No. 455. Vol. XVII.] FRIDAY, JUNE 23, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 *till* 5 *o'clock, and will gladly give advice upon all photographic matters ; and on Thursday Mornings to Members of the Trade, etc., from* 10 *till* 1 *o'clock.*

Our Views.—"Photography at Home" Competition; Prizes and Conditions—Medals *v.* Apparatus—A Curious Advertisement—Congress of P.S.G.B.—The Beginner and his Troubles—A Strange Story—The Drought—A Ladies' Club Wanted—Photographic Apparatus Supply Society—Greaves Committed—Rejlander's Nude Studies—Goerz's New Lens—Exhibition at Hamburg—Dry Plates.
Flotsam and Jetsam.—By Anchorite.
Leader.—The *Studio* and Photography.
Letters.—The Sunbeam Portfolio (Farthing)—A Society for Holloway (The Sec.)—How to Mix a Developer (Bayley)—Epping Forest (Novice)—E. London Phot. Soc. (Oakden).
Reviews.—Recettes et Conseils—Ce qu'on Peut Faire avec des Plaques Voilées—Photographic Mosaics—Die Photographie.
Articles.—Practical Hints on Obtaining Pictures (Hinton)—The Elements of Photo-Micrography (Mikron)—Dodges (Gregory)—A New Developer of Gelatine Dry Plates (Jenney)—The Gradation on Thickly Coated Plates (Child Bayley)—Compensation in Development for Variations in Exposure (Cowan).
The Photographic Convention.
Apparatus.—Pittar and Thompson's Automatic Rocker.
Holiday Resorts.—N. Wales (Forman).
Societies' Fixtures.
Societies' Meetings.—Aston—Croydon—E. London—Fairfield—Goldsmiths' Institute—Hackney—Harringay—Holborn—Liverpool.

EDITORIAL DEPARTMENT—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

TERMS OF SUBSCRIPTION—
United Kingdom........ Six Months, 5s. 6d........ Twelve Months, 10s. 10d.
Postal Union .... " " 6s. 6d........ " " 13s. 0d.
Out of Postal Union .. " " 7s. 9d....... " " 15s. 8d.

TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Print Competition, No. 50, Landscape.—Latest day, July 17th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, July 28th, 1893.)

It has been suggested that we have hardly given our readers sufficient notice of our "Photography at Home" competition, which closes on the 30th inst. As a matter of fact, however, notice was given in our first issue of this year, but as we have no wish to be hard we will extend the time to July the 31st.

◆

The following are the prizes and conditions :—

Two Amateur Photographer Gold Medals.
Two Amateur Photographer Silver Medals.
Two Amateur Photographer Bronze Medals.

Certificates will be placed at the disposal of the judges should they see fit to award them, or awards will be withheld if necessary. Past prize-winners will be awarded "Niepce" medals.

SUBJECTS.

Any photographs are eligible which will come under the description of "Photography at Home"—portraits, figure studies, groups, tennis parties, etc., etc.

Each competitor shall send in not less than six or more than twelve photographs, and they will be judged upon their merits as a whole.

The *prize pictures* will remain the property of the Proprietors of the Amateur Photographer.

No photographs that have been awarded the Amateur Photographer medal, or obtained an award at any open competition or exhibition, will be eligible.

No name must appear on the face or back of the prints, but the title must be legibly written on the front of mount, together with the number referred to on the entry form. All prints may be by any process, or on any paper, and must be mounted.

All competitors will be required to sign a declaration that they are *bona-fide* amateur photographers, and that the whole of the work of exposure, development, retouching (if any), printing, and toning has been done by them.

The competition is open to both ladies and gentlemen.

Each parcel must contain a stamped addressed envelope or label for the return of the photographs, otherwise they will be added to those collected for hospitals.

All photographs must be endorsed "Photography at Home," and sent addressed to the Editor, Amateur Photographer, 1, Creed Lane, London, E.C.

We may add that we hope to complete arrangements for criticism on all work sent in, just as was done with the recent Stereoscopic Competition.

◆

Several suggestions have also been made to us, to the effect that competitors would in many cases prefer prizes of apparatus in preference to medals. We shall be glad to have, either by letter or post-card, expressions of opinions on this point. We are open to meet our competitors in every possible way.

◆

We have come across rather a curious advertisement this week, which we reproduce. It was used as packing for a competition print.

"PHOTOGRAPHY
BY A
PHOTOGRAPHER.

TO the subjects of
H.M. QUEEN VICTORIA,
the fellow-countrymen of
H.R.H. PRINCE OF WALES,
ETC., ETC., ETC.

INSTANTANEOUS OR PROLONGED AGONY.
GOOD (or bad) PORTRAITS GUARANTEED.
MONEY EAGERLY TAKEN, BUT NEVER RETURNED.

"NOTE.—Gentlemen are earnestly requested to refrain from heaving half a brick at, or shooting at, the artist; a wooden dummy being provided for that purpose.

"Ladies are respectfully informed that throwing vitriol at the photographer is strictly prohibited.

"For further particulars apply to

"SIGNOR IMPRESSION ISTA."

* * *

PROBABLY this emanates from some bazaar, for which it would certainly be most suitable, and we give it as a suggestion for others.

* * *

THE Congress of the Photographic Society of Great Britain and Affiliated Societies, as already mentioned in our columns, will be held at the time of the Exhibition of the Photographic Society, and will be opened on Tuesday, October 10th, with an evening meeting at the Gallery, Pall Mall, when the President will deliver his annual address and present the medals awarded in connection with the exhibition.

On October 11th at 3 and 8 p.m., and October 12th at 3 p.m., there will be a meeting in the Theatre of the Society of Arts for the reading and discussion of papers, and on October 12th at 8 p.m., there will be a special lantern display in the Gallery at Pall Mall. Further particulars will be duly announced.

* * *

IN the photographic world, as in many similar realms of scientific research, one is oft-times amused by the observation of the divers traits of character possessed by some of the brothers in art with whom he comes into contact. Who, for instance, has not enjoyed a quiet laugh at the expense of the ever-struggling novice who never appears to make an atom of real progress and is always bowed down with some great overwhelming trouble? We cannot help sometimes smiling at his troubles (although we, of course, sympathise with him), for when he casts his burden from him and lays it at the feet of the reader, it is found that all his difficulties might have been avoided if he had made use of a little common sense instead of continuing slavishly on, waiting and hoping, Micawber-like, for something better to turn up.

* * *

WE once knew a beginner who persistently fogged every plate he used. Never yet had he turned out a fairly respectable negative; nevertheless, he was undaunted, and went on, blindly, trustfully, remorselessly on, expecting that whatever was in default would be bound to right itself in the end without any personal assistance. Dozens of plates were from time to time spoilt in this manner, and it was only when he eventually asked someone else's advice that an examination of the apparatus was made and a large hole in the top of the dark-slide was discovered. But for this opportune discovery this particular novice would undoubtedly have still gone sadly upon his plate-fogging career, content with bemoaning his fate, and not attempting to move a finger for his emancipation.

* * *

A SIMILAR dearth of mental energy exists in a good many cases; the unwary learner falling into pitfall after pitfall, and being caused a considerable amount of unnecessary expense, when by a little forethought all this might be avoided.

* * *

A STRANGE story comes to us from New Zealand. It appears that a certain bishop was called upon to perform a peculiar ceremony near the top of the spire of a church situated in the town of Christchurch, N. Z., and that in order to attain to this elevated position he was to be hauled up in a basket by means of ropes. The eventful day arrived, and the bishop, in his robes of office, accompanied by a workman, stepped into the basket, and the signal to commence hoisting was given.

* * *

ABOUT halfway up the basket stopped dead, and both bishop and his companion began to imagine that all sorts of horrible accidents were about to happen. The basket, however, eventually started ascending again, the top was safely reached, and the ceremony duly performed. When the bishop was once more on *terra firma* he wanted to know, naturally, what was the cause of the stoppage in the ascension to the spire. To his everlasting disgust he was informed that an amateur photographer had persuaded the men who had charge of the hauling arrangements to keep the basket suspended in mid-air when about half-way up in order that he might take a snap-shot of his reverence going aloft! Verily, some of these amateurs are a bad lot.

* * *

THE effect of the present long-continued drought is being seriously brought to the notice of the inhabitants of some of our outlying country villages, and photographers, amongst others, are beginning to be handicapped by the scarcity of water in these districts. At Hands Cross and Crawley, on the Brighton road, for instance, water is selling at the rate of 7d. per bucket!

* * *

WE have a letter from a lady correspondent bewailing the fact that there is no ladies' photographic club, and asking us whether it would not be possible for her to meet with anyone who would work with her and help her in photography, and possibly in literary work. If any lady reader in London is willing to take up the idea and will write us, we shall be pleased to forward any letters.

* * *

AT last we have reached the millennium! There is actually a photographic apparatus supply society in existence, which, as stated in the prospectus, "will be worked somewhat on the principle of a terminable building society; the shares are of the value of £5 each, payable by subscriptions of sixpence per share per week before obtaining an appropriation and being supplied with apparatus, and one shilling per share per week afterwards."

* * *

IT is proposed to supply members with apparatus at ordinary cash discount prices, the wholesale profit being probably pocketed by the promoters.

* * *

THE circular is signed by the "Hon. Treasurer" of a well-known suburban society. Does this mean that the scheme is fathered by this society? If so, it is a new phase for photographic societies to turn dealers.

THE man Greaves, *alias* Graves, *alias* Buckley, *alias* Hobson, whose case was mentioned in our columns on page 379, was on the 15th inst., at the Middleton police court, committed for trial at the next Salford Hundred Sessions, Manchester, July 3rd, on several charges of obtaining goods by false pretences. If any of our readers have suffered through this man will they communicate with the superintendent of police at Rochdale?

◆

THE article on "The Nude in Photography," in the *Studio*, which we note elsewhere, recalls to our mind Rejlander's studies in this direction. Might we ask where these are? Although Rejlander's negatives were supposed to have been sold amongst the effects of the late Fry Manufacturing Company, as far as we can gather, there is no trace of these studies in the nude.

◆

DR. C. P. GOERZ, of Berlin, read a paper last week before the P.S.G.B. on a new lens, a double anastigmat, notice of which we hope to give next week, pressure on our space compelling us to withhold this and several other interesting items.

◆

AN international exhibition of amateur photographic work will be held at the Gallery of Arts at Hamburg, from Oct. 1st to 31st. The following are the judges: Baron von Thielman, Professor Vogel, Herr Kindermann, and Professors Lichtwark and Lutteroth. As there is no fee, and prizes are to be given away, it should draw a good show. We publish elsewhere full details of the scheme, and have had some entry forms placed at our disposal which we shall be pleased to send in return for stamped addressed wrapper or envelope.

◆

THE following is clipped from the current number of *Dry Plates*," Messrs. Cadett and Neall's little monthly:—

> "In accordance with the promise made in the last number of our magazine, we have made a series of experiments to determine the alteration in speed due to using our developing formulæ instead of the standard formula for speed testing. The result is that the speed numbers should be multiplied by TWO with our developer at 65° F. It may be asked why we do not give speed numbers with our own developer. This would not leave our numbers comparable with those of other makers using the Hurter and Driffield system; we therefore use the formula up to the present used by two makers for this testing purpose."

Flotsam and Jetsam.

MR. BERNARD ALFIERI stated in a letter which appeared in last week's issue that a previous paragraph in these columns about the right to photograph in Epping Forest was incorrect. It may be, as he says, that "a permit is only necessary to photograph in Wanstead Park." But if so, why does the Town Clerk issue a "permission to photograph scenery in Wanstead Park and Epping Forest, subject to the production of this permit to the respective keepers"?

These are the actual terms in which the permit is worded, and the inference that permission to photograph in the Forest is necessary seems obvious. Mr. Alfieri himself, it appears, has protested against any restriction whatever being placed upon photographers, and in this he has done well. The suggestion that the restrictions are necessary to keep out the peripatetic photographer is possessed of very little force.

INDEED, as Mr. Alfieri states it, presenting the picture of a benevolent Corporation paternally protecting "a jaded public" from the "blandishments" of the poor peripatetic, it has a distinct savour of the ridiculous. However, the Town Clerk *does* send a courteous and speedy rejoinder to every application to photograph in the Forest, and lovers of woodland scenery cannot do better than send in their applications, and take train to the Forest whenever they feel in the mood for this kind of work. Nowhere else so near to London can they find it in such rich abundance.

They should go to Loughton, or Theydon Bois, or Epping for preference. From either of these points one can get into the innermost recesses of the Forest, where hardly a single person is to be met, only the trees and the birds, and now and then the deer crashing through the undergrowth.

MR. STEAD'S restless brain has conceived a brilliant idea which is elaborated with startling force and attractiveness in the new issue of the *Review of Reviews.* It is nothing less than a revival of the ancient idea of the pilgrimage. The object is not to worship at some particular saint's shrine, but to imbue the holiday-going public with a more adequate conception of the "priceless heritage of the historical glory and romantic associations" which have descended to us from our ancestors.

THE details are all to be found in Mr. Stead's magazine. It is enough here to say that the pilgrimage is to be from Westminster Abbey as a starting-point, down the Thames, round the south coast, and back to town by Windsor and Runnymede. Here are vast possibilities of pleasure and profit indeed.

To the photographer the most interesting part of the scheme is Mr. Stead's idea of the part the camera will play in the trip. The ship—called the *Mayflower*—is to contain a special photographic saloon and dark-room under the direction of Mr. J. Traill Taylor, and lantern slides are to be prepared from the photographs taken by the pilgrims, and exhibited during the voyage by means of the magic lantern.

IT is hardly necessary, of course, to say that this is all a dream, though doubtless a dream that will be speedily realised. And there will be many, we fancy, who will think and say that Mr. Stead and Mr. Taylor will be far better employed in this way than in trying to photograph "spooks" and other uncanny things of that kind.

THE article in which the idea is developed itself contains several photographic illustrations of great merit, and the holiday prize competition is utilised as giving a further attraction to the trip. Mr. Stead calculates that fifty out of the total ship's passengers, 200 in all, will be amateur photographers. That may be taken now as a pretty accurate estimate of the proportion of devotees of the camera to the general public.

ALL success to this latest happy thought. Even if it is not realised just in the way suggested, it may serve to crystallise the vague ideas of many who are now casting about as to the best way of spending their annual fortnight's holiday. The enthusiastic amateur could not have a better outline for a tour nor finer material for his camera.

THE camera has invaded the law courts at last. Mr. Justice Wright confirmed an order last week directing that certain bills, said to have been accepted by Lord Londesborough, should be photographed, in order to produce fac-simile copies of them. The bills are for the trifling amount of £62,000, and Lord Londesborough denies the signature. Of course, there were the usual legal quibbles about the absence of precedent, but common sense prevailed.

THE usual function of policemen is to "take" others, even M.P.'s if they render themselves amenable to the law, as they not infrequently do. But one day recently an M.P. might have been seen "taking" the policeman stationed at the members' entrance, with his hand-camera. To such distraction have the heat and the weariness of the Home Rule debate driven our "talkers in the national palace at Westminster."

ANCHORITE.

THE *STUDIO* AND PHOTOGRAPHY.

THE current number of the *Studio* is practically devoted to the consideration of photography as an art. Mr. Andrew Pringle contributes a calm, dispassionate, and fair review under the title, "The Naissance of Art in Photography," in which he says, amongst many other good things :—

"It is true that a few exhibitions have been held where artistic effect alone was supposed to be considered, but although these showed a distinct advance in the quality of some exhibits, the others were in no way more worthy to be called pictures than are those in ordinary exhibitions, unless we find abnormal merit in mannerism and *rechauffage* of the ideas of others."

After briefly but boldly championing Dr. Emerson and his work and book, he says :—

"The most important argument was against 'spotty lighted, sharply focussed, brightly developed negatives,' which were stigmatised as 'noisy and garish and inartistic.' In this book Dr. Emerson offended some, and by later actions he displeased others, but he by no means always gets the credit he deserves for his services to photography, for we firmly believe that his pictures and his writings first drew serious attention to the most flagrant sins of photography as an art ; and it is certain that very soon a school of photographers sprang up whose leading principle was to avoid sharpness of focus and to obtain increase in breadth of treatment. . . . . This crusade against superfluous detail led to many follies and extravagances. For a time we had a run on very rough papers for prints even of the smallest sizes. These prints were simply smudges in most cases ; true texture was lost. We ran riot in fuzziness. Pictures were and are made so much out of focus that the outlines are doubled, and spotty 'areas of confusion' are seen with an effect almost sickening. One set of evils is eliminated at the expense of the introduction of another set no less objectionable ; but it is hoped that in time we may return to moderation."

As an explanation of the title of the paper, which we must confess we could not at first appreciate, Mr. Pringle says :—

"If there is one defect which destroys all nobility in a picture it is 'spottiness,' and as this is one of the faults into which photographers are most prone to fall, we venture to state without dogmatism but with confidence, that the awaking of photographers to the evil of over-detail has chiefly given us the right to use the word Naissance in the heading of this article."

Good illustrations from photos by Dresser, H. P. Robinson, Emerson, Diston, Sutcliffe, and Dixon adorn and lend point to Mr. Pringle's arguments.

The editor of the *Studio* has a fairly stated article on "Is the Camera the Friend or Foe of Art ?" which preludes the opinions of Sir F. Leighton, Alma Tadema, Millais, Frith, Gilbert, Reid, Richmond, and other well-known artists on this point. We must not clip too much, but the following concluding paragraph is well worth study :—

"Lastly, has the photograph in itself the possibilities of art ? This seems to depend upon what you demand from it. So far its triumphs have been in fields where the hand of the artist could at least equal its highest efforts. The most successful naturalistic photograph, with its shadows transparent and full of light, and its atmospheric gradation subtle and beautiful, cannot even by the most active partisan be placed above a drawing by a great artist. The mass of composed pictures, wrought from many negatives, need no consideration here. On their own level they may or may not rival the average picture of an ordinary gallery. It were hard to accept either as works of art in the highest sense. For a record of tones, a picture of technical beauty, appealing to the artist by its knowledge, truth, and science, abjuring anecdote and concerned with the beauty of nature effects, the photograph may yet produce works of genuine artistic value. Its rapid summary of facts, its pleasant texture and surface in the hands of its masters, and its power to depict certain subjects which are by accidental circumstances impossible to a painter—such, for instance, as the storm-tossed mid-ocean, the frozen arctic reaches, or certain rapid effects of Nature—may possibly some day be selected by the art of the wielder of the camera ; with his instinct and knowledge forming so large a factor in the result, it deserves to come within the sacred pale of art, but in the outer courts alone. That the camera at its best can select all through the field of vision the essential and leave the non-essential, can infuse the human interest which such selection implies, and can replace the indefinable personality of the real artist, is to ask that a machine shall be not only directed by, but possessed of, genius, and this, so far as knowledge dares to forecast, is at present, and apparently must always remain, impossible."

Included also in this number is an article on "The Nude in Photography," with some excellent process-block illustrations, one of which by the kindness of the Editor we reproduce, and although we cannot agree with all that is said, we take the following extract as well worth preserving :—

"In all the range within the vision of the painter no more difficult problem may be found ; if the camera falls short it does so in splendid company ; the pictures that even suggest the actual radiance of flesh in such setting might be counted upon one's fingers. But for modelling, drawing, and flexible movement, that is to say, for the restrained movement in repose which sculpture can suggest so well, the photograph may be consulted with advantage. The poise of the bodies, the perfect carriage of the head, and irresistible truth of the arrested movement seen in the decorative initial of this paper, even in its reduced scale, tell out with such certainty, that one forgives the exaggerated size of the hands and feet, and other accidental falsifications of values and colours which distinguish the real from the ideal ; and must own that the truth exhibited more than atones for the perverted and superfluous facts also recorded."

That this number of the *Studio* is of more than ordinary interest to us photographers cannot be denied if it be considered merely as a record of the opinion of artists of undoubted standing, pitted against photography. Whether the said artists have considered the subject quite from the right standpoint is a question, however, we will not attempt to decide. We can only recommend every one to read and judge for themselves.

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Letters to the Editor.

THE SUNBEAM PHOTOGRAPHIC PORTFOLIO.

SIR,—It may interest some of your readers to know that we have a vacancy for one lady amateur on the roll of our society, and that I shall be very happy to give all particulars of membership, etc., on application. The fact that all our work ultimately goes to the hospitals and convalescent homes will speak for itself.—Yours, etc.,

W. J. FARTHING (Hon. Sec.).

The Woodlands, Chirk, June 16th, 1893.

* * *

A SOCIETY FOR HOLLOWAY.

SIR,—In your issue of the 16th inst. appears a letter from "A Member" of the Finsbury Park Society, entitled "A Society for Holloway," in which your correspondent draws an invidious comparison between his own society and the remaining four societies which he says exist in North London.

The other societies in this vicinity which have come under my knowledge are the North London Photographic Society, the North Middlesex Photographic Society, and the association of which I have the honour to be secretary. I do not know which is the other one.

Concerning the North London and the North Middlesex, these, I believe, are well known and flourishing societies; and, in my humble opinion, even our own association will, to say the least of it, hold its own, though in its infancy, with the Finsbury Park Society.—Yours, etc.,

THE SECRETARY,
Northern Photo. and Scientific Association.
32, Park Avenue, Wood Green.

* * * *

HOW TO MIX A DEVELOPER.

SIR,—I see from the last issue of the AMATEUR PHOTOGRAPHER that Mr. Howson recommends the addition of acid to the water before dissolving the pyro therein, and not *vice versa*, a course which has your recommendation also.

I am quite of this opinion myself, and had I been giving a formula in which ordinary tap-water was used, I should have laid stress upon the necessity of such a course being adopted. As it was, I was referring to the employment of *freshly boiled water*, in which case, as far as my experience goes, it is perfectly immaterial whether the acid be added first or last, the solution keeping clear for a very long time in either case; still, as Mr. Howson states that there is a considerable increase in the length of time it will keep when the acid is mixed with the water first, such a course seems preferable.

The caution I gave as to adding the acid last was to prevent anyone making his solution with the ingredients in the order given in the formula, and adding the sulphuric acid to the pyro.—Yours, etc.,

R. CHILD BAYLEY.

* * * *

RE EPPING FOREST.

SIR,—Your Flotsam note as to licence for Epping Forest was, if I as a mere amateur may dare to venture a difference of opinion with an artist-author on the subject of photography, quite correct. It was due to your valuable paper that I made an application for a permit last season, and on that is written "Epping Forest and Wanstead Park." If the licence for the former is not necessary why do they give themselves extra trouble—a very unusual thing for any official to do. Perhaps, the gentleman will oblige with an explanation.—Yours, etc.,

NOVICE.

* * * *

THE S. LONDON PHOT. SOC.

SIR,—Referring to the paragraph relating to the 12 by 10 camera, etc., loaned to our members, in your last issue, our committee have, within the last few days, decided to purchase a whole-plate camera with rectilinear and wide-angle lenses, tripod and shutter, for the benefit of such of our members who may desire occasionally to use a camera of that size.—Yours, etc.,

CHAS. H. OAKDEN
(Hon. Sec.)

Reviews.

Recettes et Conseils Inedits a l'Amateur Photographe. By G. Jardin. Published by Gauthier-Villars et Fils, 55, Quai des Grands-Augustins, Paris. Price 1fr. 25c.

This little book contains a collection of simple practical formulæ and instructions for all photographic operations from the choice of apparatus to the finished print. Whilst containing nothing essentially new, it is a convenient reference book for accepted methods of procedure.

Ce qu'on Peut Faire avec des Plaques Voilées. By Max Forest. Published by Gauthier-Villars et Fils, 55, Quai des Grands-Augustins, Paris. Price 1fr.

The natural thought on reading this title would be that the best thing would be to place the *plaques voilees* in the dustbin, but M. Forest tells us how we may utilise them, and suggests the preparation of collotype plates of transparencies in ferro-prussiate, and by treatment of the fogged plates, with chloride of copper and bromide of potassium and subsequent development, transparencies of various tones.

This is an extremely suggestive little work, and the use of the processes recommended will enable amateurs to produce something presentable from fogged plates, whether developed or not.

Photographic Mosaics. 1893. Edward S. Wilson, New York. Published in England by Gay and Bird, 27, King William Street, W. Strand. Price 2s. 6d.

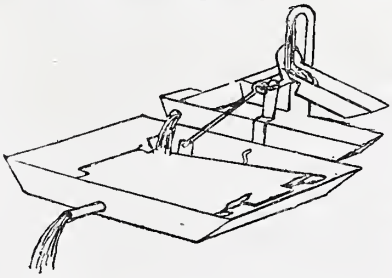
This, the annual of *Wilson's Photographic Magazine*, breaks its record for illustrations, no less than eighty-three full-page process book illustrations being given. Dr. Wilson takes care that the reading matter is up to standard, and besides a good summary of photographic progress by him there are some good articles on art and work, and these backed up by others from such well-known men as Nicol, Chapman Jones, Burton, Liesegang, Schumann, Eder, and Vidal, and others make up a very readable and creditable volume.

Die Photographie. By Krüger. Second Edition. Revised and enlarged by Ph. C. J. Husnik. Published by A. Hartleben, 8, Maximilianstrasse, Wien 1. Price 7s. 3d.

We have here a treatise on photography at once practical and theoretical. Herr Husnik is content to give only well-tested formulæ, and includes the wet-plate and dry-plate processes, with all the printing processes, besides the photo-mechanical processes, photo-ceramics. The theoretical portion is sufficiently complete to enable the operator to understand what he is doing, and the information on the practical side is reliable and recent.

Apparatus.

PITTAR AND THOMPSON'S "AUTOMATIC" ROCKER.



THE London Electroplating and Refining Company, of St. John's passage, Red Lion Street, Clerkenwell, have submitted one of the above for notice. By means of an india-rubber tube it is affixed to a water supply, and without any pressure this rocks the stand carrying the developing dish by the alternate filling and emptying of the sloping tanks at top, the water escaping by the pipe in the tray below. This will be found a very useful appliance for the dark-room, especially for protracted development, as when the water supply is once adjusted it is quite automatic. Price 4s. 6d.

Downey's Art Studies.—Messrs. Marion and Co., of 23, Soho Square, W., are issuing a new series of the above measuring 19 by 13 on fine ivory cardboard 30 by 22½. From the specimen they have sent us, they are to be congratulated on such a fine result, which is fit to adorn any room.

Messrs. Elliott and Son, the well-known plate-makers of Barnet, have secured the services of Mr. J. B. B. Wellington as experimentalist and emulsion maker, he having just completed his three years' contract with the Eastman Company. Messrs. Elliott intend in the course of the next few weeks to place on the market a new issue of exceedingly rapid plates.

New Formula for Metol.—Messrs. Arthur Schwarz and Co., of 9, New Broad Street, E.C., have sent us the following improved formula for the above:—

Metol	10 gr.
Carbonate of soda	40 „
Sulphite	20 „
Water	4 oz.
Bromide of potassium	2 gr.

They have also sent us samples of their fixing salt and Glycin, of which we shall have more to say in a future number.

Practical Hints on Obtaining Pictures—III.

By A. Horsley-Hinton.

(*Continued from page* 405.)

I have in my mind whilst writing a view which will be well known to any of my readers who are of London, and those who are not familiar with the particular spot must know many similar which would serve the purpose of example and experiment equally well.

Looking westward along the Thames from somewhere about the centre of one of its most frequented bridges, the river makes a bold curve to the left, and is at a little distance crossed by another and many-arched bridge. On one side are several tall chimneys, wharves, and factories, and in the background, cutting against the sky, an irregular series of palatial buildings, including some of the modern club-houses and hotels. A very commonplace affair, you may say; but it matters not—see it, and study it under the varying circumstances of the sun at rising, at meridian, and in decline, and a very useful lesson may result. Commonplace though it be, you shall look upon it twenty times and yet find you have not learnt all that may be learned of the manner of the sunlight among chimneys, bridges, and great buildings.

In the first place, as I have said, matters pertaining to structural detail are made visible, the painted names of the wharves can be read, the cranes, the landing-stages, the piled-up merchandise in cases and sacks, are all seen; wood-work is distinguishable from brick and stucco; the stone copings and buttresses of the bridge may be distinguished from the main structure; every one of the numerous windows in the great buildings beyond may be counted, stone facings, slated porticocs, whitened pilasters, and all the elaborations of luxurious architecture.

The entire view is full of detail, but it is not from the fact of its possessing detail that I should condemn a view thus illuminated as unsuitable for effective pictorial work.

Not only the presence of many details also means the presence of an almost infinite number of little points of light and shade, so that there is a lack of smoothness and breadth, but chiefly notice that objects fail to stand out one from another, there is a total absence of bold relief, an effect with which when present the eye is nearly always pleased. In the particular scene which we have imagined the water in the foreground looks flat and devoid of those strongly marked ripples and eddies which often give such a charm to flowing water; the buildings on the river bank, and the bridge in the centre are seen as light objects on a light background, and are hence lost one in the other. Notice any country landscape under the same conditions—for instance, a number of trees or a wooded hill-slope in full sunlight—the form of each tree is lost in that of those next behind and before, and a flatness and uniformity over the whole gives nothing to catch the eye, no strong variety to appeal to the senses.

If we return to our river-bridge when the sun is more in front of us—that is, above the scene which would constitute our picture—the entire effect will be seen to have changed from one lacking force and interest to one which possesses the vigour, the contrast, and the breadth which even in so commonplace and uninviting a place may almost be said to be picturesque.

Possibly one never having noticed nature and the phenomena of light will, noting the bluish haze which seems to envelope the more distant regions, attribute the change to the presence of a mist over the river. In all probability, however, no physical change has taken place, but with the altered position of the sun, the *atmosphere now becomes visible*, and this is just one of the most important matters to bear in mind, and one which photographers too often ignore, or of which they are ignorant.

But besides this, and in conjunction with it, we have the fact that the surfaces of all things turned towards us are now in shadow, and are comparatively dark where before they were light.

Hold up the hand so that it is well lighted all over, and its outline is hardly discernible from the light objects behind it, but hold it between yourself and the light, and it at once appears dark and strongly defined. Could you place the other hand in front of it at a little distance, and pass a cloud of smoke or steam between them, you would have a repetition of the conditions which have made our scene so much more attractive and effective. As objects one behind the other become more remote, a greater volume of atmosphere made visible by the position of the sun intervenes, and thus gives a feeling of distance, and against this transparent veil of air nearer objects stand out dark and strongly contrasted; only on the tops of things where the rays of light fall is there brilliant illumination, and these seem the more vivid because of the adjacent shadows.

In any locality and from any position the effect of light, various planes and surfaces will afford an inexhaustible subject for study, and the knowledge thus obtained, as well as the ideas and suggestions which will arise, are invaluable to the serious student of pictorial photography.

I have thus spoken of objects seen *in* the light and *against* it, and know not if further example be necessary; innumerable instances occur to one. In great masses of foliage there is remarkable gain in effectiveness when the light is from above—the edges of each tree or distant portion being lighted on its upper edge only and the rest in deep shadow; a hundred little irritating points of light become cleared away, and breadth and relief are added. Also most noticeable is the alteration of light observable in landscape foregrounds. A grass meadow or common land *in* the light may appear monotonous, uninteresting, and featureless, but seen with the sun in front of us, and the light discovers a thousand things the presence of which was before unsuspected. Tall weeds and grasses come dark against the lighter ground, and each tiny hillock, furrow, and footprint becomes an object of importance, and seems to fill the empty foreground with interest. Far away in distance tree forms and housetops form silhouettes in softest grey and purple against the lighter sky. And of the sky itself a volume alone might be written, but this I propose to leave to another occasion.

Now from the foregoing it might seem that I would recommend that all pictures be taken *against* the light, but this is by no means my intention. There are phases of nature in any and all conditions of illumination which are beautiful, but I have laid strong emphasis upon two opposite conditions, because perhaps the differences are most noticeable and striking, and having once arrested my reader's attention, I am hopeful that all the variations and changes in every scene which come and go with each change in the position of the sun and with every alteration of cloud and sky, may of themselves appeal, and appealing receive attention. And then mark the sequel to all this. If the general aspect be so subject to change it will follow that some conditions will be more suitable for picture making than others, and that therefore it is necessary to study and watch our subject before attempting its portrayal. See it in all lights and select the best. And if you ask, how shall you determine the best, I would answer that for the present, and for the education and training of the perceptions, choose that aspect which is most striking and effective, and for this reason I have almost confined my remarks to pictures "against the light." "That nature is always right is an assertion artistically as untrue as it is one whose truth is universally taken for granted. . . . that is to say, the condition of things that shall bring about the perfection of harmony worthy a picture is *rare*." Thus has a master in art spoken, and if so rare the greater our need of seeking it diligently and with patience, that he who loves nature may become her son and her master. "her son in that he loves her, her master in that he knows her."

(*To be continued.*)

The Elements of Photo-micrography.

By "Mikron."

(*Continued from page* 404.)

Before leaving the consideration of the properties of microscope objectives there is a point with regard to which it is very probable that but few users of the microscope take the trouble of ascertaining the meaning, and which may now be conveniently referred to. Objectives, or their cases, very frequently have the letters "N. A.," followed by certain figures, marked on their surface. Such signs when interpreted correctly give the microscopist a very good idea of the capabilities of the lens.

It has been mentioned that the angular aperture of a lens—that is the angle formed by lines drawn from opposite sides of its aperture to its focus—immersed in water, glycerine, or oil is equivalent to a much larger angle of an ordinary dry or air lens, on account of its power to collect rays of light which would otherwise have been lost by reason of their great obliquity and internal reflection. Consequently the angular apertures of lenses made for use either in air, water, or oil are not comparable one with another. But Prof. Abbe and Helmholtz when experimenting on the limits of vision formulated a method of direct comparison. They found that the resolving power of any objective could be stated in terms of what they called the "Numerical Aperture" of the lens. This "N.A.," or numerical aperture, is arrived at by means of a somewhat formidable-looking process: it is necessary to know the refractive index of the medium between the lens and object, and also the angular aperture of the lens itself; then if we multiply the index of refraction by the sine—that is a trigonometrical function—of half the angular aperture, the result will be what is termed the numerical aperture of the objective. The refractive indices of the most common media are air 1·00, water 1·33, and cedar oil 1·52.

With regard to the eye-piece or ocular, it is even yet a much debated point as to whether it should be used for photographic purposes. So much depends upon the conditions, such as the magnification desired, the class of camera, and the objective used, that it is not advisable to lay down a hard and fast rule, as what will suit one case, or the taste of one experimenter, will not suit another. Perhaps the easiest way out of the difficulty when it presents itself, is to try both methods, with and without the ocular, and choose that which gives the desired features with the greatest sharpness and truthfulness.

With low powers, say up to ¼ in., the eye-piece may be found convenient, as the diminution in the intensity of the light is not very great; but with higher powers it is certainly appreciable, and it therefore becomes necessary to work without the ocular.

The most useful ocular is the "Huyghenian," which is usually termed the "A" or "No. 1" eye-piece, magnifying the image produced by the objective by about five times. The "projection" and "compensating" oculars made by Zeiss are very good for photographic work. The former have the disadvantage of giving a more reduced field than that given by other objectives, but they, nevertheless, give excellent definition. The "compensating" eye-pieces are specially designed for use with apochromatic objectives. They are really delightful lenses to work with, as, although they magnify the image formed by the objective up to twenty-seven times in diameter, they give splendid definition.

When advantage is taken of the ocular to increase the amplification of the image projected by the objective it is, as a rule, impossible to use a long-extension of the camera, for the ocular enlarges the faults of the objective, and, at the same time, adds those peculiar to itself. The result is that the image is by no means satisfactorily defined, and may even be seriously distorted.

If it be possible to obtain a well-illuminated and clearly defined image on the focussing glass, and also of sufficient magnification, without the aid of the eyepiece, it would be folly to use one. But if an amplification higher than that obtained by the full extension of the camera be desired, the eyepiece becomes of great service, and this is particularly marked if the operator possesses one of the projection oculars specially made for photographic work. This feature, namely the reduction in the length of camera, constitutes the main advantage in the use of the eyepiece.

With regard to the camera and the best means of connecting it with the microscope, there is a very wide field opened for the exercise of the operator's individual taste and inventive skill. In fact, there are those who altogether dispense with the camera itself, and use a suitable darkened room in its stead. Others, again, cut off the light by a tightly constructed partition, through which the eyepiece end of the microscope is allowed to project. But, although these arrangements have the charm of being novel they are not so simple nor so easily constructed by the amateur as some of the forms bearing a much more solid and complex appearance.

One of the most simple plans is to fasten an ordinary camera to the microscope, either by a conical bellows or any other convenient and light-tight connection. The whole of the apparatus should be mounted on a baseboard of hard wood, such as mahogany or teak, which should be provided with good stout raised edges to permit of a free movement of the camera either backwards or forwards. There are two points with regard to the arrangement of the camera, the importance of which cannot be over-estimated. In the first place it is absolutely imperative that the whole instrument should be extremely rigid and, as far as possible, mounted on such supports as will tend to neutralise accidental or unavoidable vibrations of the room; and, secondly, that the centre of the sensitive plate, when in the camera, should be exactly in the optical axis of the microscope.

The camera itself may either be an ordinary one, such as is used for outdoor work, a copying or long-focus camera, or a specially-made apparatus. In any case it must be capable of being considerably lengthened in an easy manner. To this end it is desirable that the front of the camera should be perfectly rigid and fixed by a firm clamp, and that the back or slide-holding portion should be the only part movable. When sufficiently extended it should be securely clamped to prevent any accidental movement.

A convenient extension for beginners will be found to be about five feet; but, when a little success is attained the microscopist is almost sure to desire a greater limit. Therefore, when arranging for this branch of work, it will be well to keep in mind the possible necessity of having to increase the extension to, say, fully 10 feet.

However, the operator himself is the best judge of this matter, as it simply depends upon the class of work he may wish to study. For large specimens, such as entomological, geological, and a good many pathological varieties, a short extension of the camera and a somewhat low-power objective will be found most suitable. But small objects, such as botanical or bacteriological specimens, need very high powers, and not infrequently a very lengthy camera extension.

When possible, it is certainly advisable to have a camera which will hold plates from whole-plate to quarter-plate size. But the beginner is recommended to employ only quarter-plates to commence with, as the results of one's labour in this direction are so gloriously uncertain that it is advisable to "cut down" the expense somehow or other, and, although dry plates are certainly inexpensive, they will, comparatively speaking, soon become costly by reason of the multiplication of failures which fall to the lot of all who enter this field of work.

If the camera be of home-made construction or specially made for photo-micrography, the dark slide should be purchased first and the camera back made to suit its dimensions. A single plate slide is undoubtedly the best for this purpose, as it may also be made to serve as a holder for the focussing screen.

The focussing screen should be of somewhat thin glass having a very delicately ground surface; but as the illumination of the projected image is extremely feeble, and, in fact, is often invisible on this surface, another screen of ordinary plain glass should be at hand. This piece serves to finish off the focussing, which is best performed by having the inner surface, that is the side facing the object, marked by a few scratches about its centre or ruled, by means of a marking diamond, with a small number of crossed lines.

With regard to this part of the apparatus, a point to be remembered, which is of the greatest importance, is that the inner surface of the focussing screen must occupy exactly the same plane as will afterwards be taken by the sensitive plate.

The microscope may be connected with the camera either by means of a conical bag or a bellows arrangement fitting light-tight to each part of the apparatus.

If the apparatus is to be used in a vertical position, either of these forms will be found satisfactory, but for horizontal work the writer personally prefers the front or fixed end of the camera to be provided with a suitable opening for the insertion of the eyepiece end of the microscope tube. By such an arrangement a suitable support for the body of the microscope is easily obtained without the necessity of still further complicating the apparatus by an additional stand for the purpose.

The microscope stand must be capable of being quickly and firmly clamped to its support, and also capable of being easily removed. An excellent plan is to have it mounted on a revolving table or stand, the movement of which must be very steady. By this means it is quite an easy matter to use the microscope in its usual position for the purpose of finding and roughly focussing the particular object, or part of an object, to be photographed. When found, the table merely requires revolving until the microscope is brought into its correct position with regard to the camera, the body is then brought into a horizontal position and connected with the camera.

Again, if the apparatus is to be used in a horizontal position, and it is intended to do much work with it, it is advisable to have it so arranged that the centre of the focussing screen will be on a level with the eye of the operator, for if below that height, it will not only be found inconvenient, but very fatiguing to manipulate.

It will usually be found impossible to work the fine adjustment in the ordinary way when focussing the object in the camera; hence it is necessary to have some suitable arrangement for manipulating it from a distance. A very common plan is to connect the fine adjustment screw to a grooved wheel mounted on a long rod placed at one side of the camera, the connection being made by means of an endless band. By revolving the rod the fine adjustment may easily be worked. The writer, however, prefers a modified arrangement of this kind, by means of which he considers that the operation of focussing when the camera is, say, only half extended, is easier and more regular than when the revolving rod is used.

For this purpose a doubly-grooved wheel, *G*, is firmly supported in a horizontal position on the left side of the camera baseboard, and directly opposite the fine adjustment, *A*, of the microscope. An endless band, *B*, connects the two wheels. Around the upper groove of the wheel, *G*, another endless band, *F*, is passed, its length being equal to the longest possible extension of the camera. This band forms a rein by which the movement of the fine adjustment may be guided, and has the advantage of being easily held in the hand during the operation of focussing. It is also worked with equal facility, whether the camera be fully or only partially extended.

Too much attention cannot be paid to the firmness and rigidity of the complete apparatus. To neutralise the effect of vibration, some microscopists mount the apparatus on a foundation of old magazines or journals, or place the table legs in boxes of tightly-packed cotton wool. But a neater though somewhat more expensive plan is to use stout indiarubber blocks on which to stand the table feet, and others to support the baseboard of the apparatus when on the table itself.

Workers who desire to photograph very minute objects, and who dwell in town or in busy thoroughfares will find the night time the most suitable for this purpose, as the general traffic is usually considerably less than during the day, and consequently the tendency to failure through unavoidable vibration will be reduced. For the same reason the basement of a building is preferable to the floors above it.

(The diagram referred to above will appear next week.)

(*To be continued.*)

Dodges.*

By C. O. Gregory.

The subject of "Dodges," which it is my privilege to bring before you this evening, is one that should be of great interest to the amateur photographer. In fact, it goes a long way to complete his photographic education. To the profession, I presume, it is impossible to mention anything under this head that is not in their everyday practice, but the beginner in the art regards anything outside the elementary instructions of procedure as dodges—at least I do. That the best workers among us indulge in dodging is admitted. One will tell you he is obliged to dodge all his negatives; another that good negatives are the exception with him rather than the rule, or another that he has no good negatives, and so on. Of course, a good deal of this is modesty, but it leads one to the conclusion that the production of superior work is, as of course it must be, the result of careful manipulation at every stage of the process, and knowing the means by which to avoid or overcome defects of every description as they arise—and to many of us they arise often enough—it is my intention, therefore, with your permission to refer to a few rough and ready dodges that in my own limited practice of photography have been found useful, and I will also offer you a suggestion or two which I trust will be worthy of your consideration, but I would add that my remarks (coming as they do from rather a raw recruit) are intended for the less advanced workers chiefly.

The most interesting part of dodging refers, no doubt, to work on the negative, but before we come to that I purpose mentioning a few other items, and will commence with development and the use of a brush. I first saw a brush used in this room for the purpose, as I understood, of preventing air bells and keeping the developer in motion. I tried it for the latter purpose, and soon accustomed myself to use it in literally painting-out under-exposed parts (after pouring off the developer), and by this method worked up detail in the weak parts without causing undue density in the high lights, to me a most important point. With usual development when a plate was any way under-exposed or the contrasts great, I was always liable to get the high lights developed right through to the back of the plate (when they begin to spread and cause halation) before sufficient detail was obtained in the shadows. On the other hand, with a brush, when I find the high-lights progressing favourably, I pour off the developer and work out all detail, then pour on the whole of developer, again rocking the dish until sufficient density is obtained, stopping development when the high-lights are quite through the plate, and before they have time to spread. The negative I pass round for your inspection was produced in this way. The white garments of the cricketers and the tent came up at once, and were fully out when the lower part of the plate was bare, the black coat in central figure was also bare glass without detail, but by pouring off developer, except a small quantity, and tilting the tray so that the developer only covered the bottom part, with the brush I was enabled to get out all detail of grass and black coat, without losing detail in the high-lights. With the ordinary mode of development I think the result would have been far different. As a curiosity I also show you another negative of the same subject worked up in the same way, but over-exposed, the exposure being in the proportion of three to seven. The developer was, of course, very different; you will notice there is a difference in colour of the film; but the printing quality is the same, and in this case I think the developer *has* modified the action of exposure, for I doubt if you can tell which is the over-exposed plate. I also pass round two other negatives, exposed and developed with the idea that development with the brush will go a long way to prevent halation. In the first the distance came up at once, but the near buildings were certainly under-exposed, being in heavy shadow; it took twenty minutes to get out detail, but the distant or central part was only a minute or so under the developer, irregularity being avoided by occasionally sweeping the wet brush over the whole of the plate. The other negative was an instantaneous exposure, treated in the same way, but you may observe that the edges of the trees are perfectly sharp, and the negative with a little other dodging gives a fair print.

Another advantage of the brush and local development is that clouds can be saved in the negative if there are any in the landscape, or in other cases it may be desirable to keep the sky thin and work clouds on the back in the manner to be presently described, and I feel confident after twelve months' trial that the brush gives great power over the quality of the negative, and I mention it to you as a most useful dodge.

Before I leave development I would also mention the use of the warm finger in more energetically bringing out particular parts. In lantern slides this is very useful, but it can very easily be overdone. Gently move the second finger over the part you wish to bring out stronger, when the second finger gets cold use the third finger on the place, and by the time the third is cold the second will be again warm enough to continue the operation, and so on until the desired effect is obtained.

Intensification is, I think, almost outside our subject, especially as the matter has been so ably dealt with on other occasions. I am tempted, however, to say my own opinion is that if thin negatives are cases of vexation, intensification, unless performed with great judgment, is nine times out of ten quite as bad. But there is a dodge or two in connection with it worth mentioning. The first is, dry your negatives quickly, and in a strong light; it gives (or prevents them losing) density. I fancy the latter. You will be surprised at the difference in a negative dried in a strong light or even in the sun *if the negative has previously been through the alum bath*, and one dried in the dark in a cold situation; the first will be of a rich brown colour, the other of a greyish tone and of less printing density. Another dodge is slight intensification by the clearing bath, but it must be a clearing bath containing iron. The iron immediately changes the colour of the film, darkens the high-lights, and at same time clears the shadows, and so give a crispness not possessed by the negative before. A weak solution of plain iron, or the usual iron developer will also intensify by changing the colour of the film.

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* Read before the North Middlesex Photographic Society, June 12th, 1893.

In some instances it becomes a necessity to reduce parts of a negative; a strong light through the branches of trees, or a bright ray of light through a window or an archway generally causes halation, to the detriment of the negative. In most of these cases it is possible to considerably modify the evil or even entirely overcome it by chemical or mechanical means. I recommend methylated spirit (it must be neat, not spirit and water), and must be used after the negative is dry, by applying a little to the part to be treated until it softens (don't be in a hurry about it), then with a piece of chamois leather rub the part until it comes off on the leather, changing the leather when it gets black, and continue until the desired effect is obtained. I only recommend this treatment for small patches, say not exceeding the size of a sixpence. For larger surfaces the remedy is often worse than the disease, as the result often appears unpleasantly smeary. It is effective on faces when too dense, also to bring detail out in the folds of a white dress, but, like all remedies of this description,it must be used with caution and patience. Another method I have tried, rubbing down with brick-dust, and find it effective on thick films. The way to use it is to rub your finger on a piece of bath brick until the ribs on the skin are worn down and the finger quite smooth, the finger will then have adhering to it sufficient of the fine dust to reduce density on the face, etc. This will not do for thin films.

It is sometimes desirable to use a quarter-plate in a half-plate slide, but it is a nuisance bothering with quarter-plate carriers, in addition to being obliged to get a separate box of plates. Both of these troubles can be avoided by cutting a half-plate in half with one of the cheap glass-cutters, place one half in centre of dark slide, filling up the side spaces with cardboard the same thickness as plate. In this way two quarter-plates can be used, back to back, or one quarter-plate and one half-plate.

The Printing-Frame.—A quarter-plate picture can be vignetted into cabinet or half-plate size by using a half-plate printing-frame, with a piece of cardboard the same size, with an aperture cut out for the quarter-plate negative, covering the join with yellow or black paper, as in the example I show you. The same arrangement applies to larger sizes.

Plain and Fancy Borders.—At times you may wish to have a margin round a print, perhaps a plain one round landscape, or a fancy one for a portrait. For that purpose a mask must be provided of opaque paper, cutting out an oval, square, or any other shape desired; place the outer portion on the negative in its proper position, then the sensitised paper, and print. By using a larger frame, and filling up the space round negative with cardboard, a much wider border can be obtained, and a plain white border gives, I think, a neat and bold appearance to a print. It may, on other occasions, be desirable to print a fancy border, and it will be necessary then to make a negative of the design required—marbled paper, or imitation morocco paper will answer the purpose. After printing with the plain border, the part already printed must be covered with the piece of opaque paper cut out of the mask, slightly stick it in its place on the print, and print the border from the border negative provided for the purpose. There are several modifications of this style of double printing, which will no doubt suggest themselves as occasion requires.

The Negative.—I now come to dodges in printing from the negative, and will suppose that on examination of the negative unpleasing defects are observed. There may be shadows too intense, one side thicker than the other, the foreground too thin, etc.; all these matters want attention and correction, and for these and similar faults I prefer simple to more elaborate means, and I don't think there are many faults but what can be corrected by means of semi-transparent material, tissue paper and the like. Use it in this manner: suppose the lens does not cover the plate sufficiently, the corners of the negative are then thin, and print dark; in such a case, gum pieces of paper on the corners of the frame to shade off the corners and so prevent any unpleasant appearance. A road is, perhaps, too dense; cover all except the road with tissue or yellow paper. One side of negative thinner than the other, and so prints quicker; paste tissue paper over one side. Perhaps a central portion of the negative is thin; cover the whole of the negative with tissue, and a second or third piece over the centre, and so on. In fact, I know nothing more generally useful than tissue paper. It is also invaluable for thin negatives; use one, two, or more thicknesses; in fact, any negative is better for printing under it. As an example, I show you a print from a negative of an interior, about the worst I can find, and another print from the same negative, dodged with tissue and yellow paper. I think the superiority of the latter over the former is apparent. Another example is of a workshop; the light at the window is rather strong, consequently, printed as usual it is unsatisfactory, but if, after printing to usual depth, a piece of opaque paper is taken with an aperture, cut the shape of the window, and the window is printed deeper, a great improvement is made.

(*To be continued.*)

A New Developer for Gelatine Dry Plates.

By W. P. Jenney, Ph.D.

During the winter of 1892 an investigation of the chemical action of the different developing agents employed with gelatine dry plates was conducted jointly by Mr. W. Dinwiddie, of the United States Geological Survey, and the writer. In the progress of the experimental work it was noted that, while all soluble salts of silver were rapidly reduced and precipitated by the addition of a solution of ferrous sulphate, hydroquinone, or other developing agent, yet if the silver salts were first emulsified or combined with gelatine, no precipation occurred, even by the prolonged action of concentrated solutions.[*] Further, that suitable developing agents incorporated with the emulsified silver salt constituted a developer of unusual power for gelatine dry plates, especially applicable for instantaneous and under-exposures.

An application for United States patent was made for this discovery, and is now pending.

The accepted theory of the action of the developer upon gelatine dry plates is that the latent image formed by the action of light upon the film becomes visible through the reduction of the photobromide of silver to dark coloured reduction compounds, and finely divided metallic silver by the chemical action of the developing agent. And that the image is further strengthened by a weak electrolytic action induced, whereby the image is built up from the bromide of silver, unaltered by light, remaining in the film.

With a developer containing silver this electrolytic action may be increased and greatly prolonged, the image gaining additional intensity from the silver derived from the developer.

The veiling of the image, or fog, produced by excessive strength of the developing agent, or by its prolonged action, are thought to result from a reduction of the unaltered silver bromide disseminated in the film. This fogging may be prevented by the addition to the developer of a small amount, less than ½ per cent., of an easily reducible salt of silver. The silver salt in the developer is more easily reduced by the developing agent than the unaltered silver bromide in the film, and protects the latter from reduction, and prevents fogging as perfectly as the coating of zinc given to iron in the galvanising process protects that metal from oxidation. This protective action of the silver in the developer is increased by bromide of potassium, which restrains the reduction of the silver bromide by the formation of a difficultly reducible compound without interfering with the action of the argentic developer. Resultant from this is the power of prolonging development indefinitely without danger of fogging.

The developer may be prepared in two forms: as an emulsion composed of the double sulphite of silver and soda combined with gelatine, suitable for incorporation with any of the developers in use, or as a single solution ready for use, containing in proper proportions the argentic emulsion, developing agents and alkali.

In either form it is an opaque olive-coloured emulsion, miscible in all proportions with water.

The silver salts employed are the different double sulphites of silver and soda; these enter into combination with gelatine with the formation of stable compounds capable of existing in a chemically passive condition in the presence of the strongest reducing or developing agents.

It should not be understood that this developer brings out much more detail than can be obtained by the exercise of skill with pyro; what is actually accomplished is a relatively uniform increase in density all over the plate, and a strengthening of the delicate detail in the low lights and shadows.

The ultimate object of development is not the negative, but the print obtained from it; and by the employment of argentic emulsions, detail, visible only as delicate tracery in the film, may be built up in silver until it becomes printable.

Measured by practical results, the time of exposure of all well-lighted subjects may be reduced to from one-fifth to one-tenth normal (E/5 to E/10).

This is equivalent to an advance of two or three sensitometer numbers on the plates used. With Carbutt orthochromatic plates, Sen. No. 3, well-developed instantaneous views were obtained in bright sunlight with the exposure given by a Prosch shutter and full opening of lens. Also, in many successful experiments where the normal exposure was carefully determined by Watkins' meter, the exposures actually given were in well-lighted views one-tenth normal, increased to E/4 where detail was desired in the shadows.

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[*] This restraining action of gelatine and other organic substances, such as sugar, starch, glucose, and gum arabic has been remarked by Abney and Carey Lea. The older text books on photography describe a method of redevelopment or intensification of collodion wet plates before fixing by the addition of silver nitrate to the acetic acid and pyro developer.

Small diaphragms can be used in instantaneous views in strong light where there are not deep shadows. With quick plates a lens of ordinary rapidity (*f*/8), and a shutter speed of $\frac{1}{50}$ to $\frac{1}{100}$ second, a diaphragm of *f*/16 will afford, by prolonging the development, negatives that almost equal time exposures in detail and definition.

The opaque developer protects the plate from all action by light in the dark-rooms. Precaution should be taken that the plates are not in the least light-fogged while in the plate-holders, as on development the fog is intensified. Further, by its use, development is reduced to a mechanical process, requiring little attention, and easily carried out by any one.

The employment of argentic salts in photographic developers is as yet in the experimental stage; its possible future evolution cannot be predicted. From want of time the experiments were confined to the development of dry plates. The action of argentic emulsions upon bromide paper are unknown.

Most of the experiments have been made with strongly alkaline eikonogen and hydroquinone developers, a few tests only with pyro, and none with ferrous oxalate or other ferrous developers.

The new developing agents requiring but little alkali, such as amidol and metol, offer the greatest encouragement for investigation.

Further, this use of silver salts suggests the possible employment of other metallic salts, such as platinum and gold, in photographic developers.

In astronomical work, argentic developers will probably prove of value, and in certain photographic processes, requiring negatives of extreme density, they may find a place.

The prevailing rule in landscape photography is to somewhat over-expose, depending upon development to correct the consequent tendency to flatness and lack of contrast in the negatives. It is even stated that there is a greater latitude on the side of over-timing. The experiments made by the writer indicate that below normal exposure the latitude is at least proportionately as great, and that superior negatives result from exposures, which, while sufficient to impress upon the film the most delicate detail in the shadows, are yet far under the time thought to be requisite to obtain the best results.

THE ARGENTIC EMULSION.

The preparation of silver tartrate:

As silver tartrate is rapidly darkened and decomposed by exposure to white light, this emulsion is best prepared in the dark or under a red light. A solution of—

Nitrate of silver	200 gr.
Distilled water (cold)	12 oz.

is precipitated by the equivalent weight of tartrate of potash; the amount varies slightly with different samples, but is approximately:—

Tartrate of potash	105 to 120 gr.
Distilled water (cold)	2 oz.

The bulky white precipitate of silver tartrate is soluble in pure water. It is not washed, but placed upon a filter and allowed to drain. The filtrate contains some silver, which can be precipitated as chloride and saved.

The moist precipitate of silver tartrate is removed from the filter paper and dissolved with rapid stirring in a warm solution of—

Sulphite of soda crystals (pure)	800 gr.
Glycerine (pure)	1 oz.
Distilled water (hot)	4 „

If the sulphite solution is not distinctly alkaline, it should be made so by the addition of carbonate of potash or soda, 20 to 30 grains, before adding the silver tartrate, to prevent the formation of a precipitate of the difficultly soluble crystalline double tartrate of silver and soda potash, which separates in neutral and acid solutions. The solution of the double sulphite of soda and silver is nearly colourless and transparent. It is filtered to remove a slight precipitate of silver sulphide, derived from the impurities of the chemicals used.

A solution is made on a water bath, with care to avoid over-heating and decomposing the gelatine, of—

Nelson's sheet gelatine, No. 2	100 gr.
Distilled water (hot)	2 oz.
Then add:	
Pure glycerine	2 oz.

It is advisable to soak the gelatine for one hour in one-half of the above quantity of cold water; the swelled gelatine quickly dissolves on the addition of the remainder at the boiling temperature.

The silver solution is gradually added to the solution of gelatine with constant stirring, to avoid the precipitation of the gelatine; both solutions should be warm when incorporated (100 to 120 deg. Fahr). The resulting solution is made up to a volume of 12 oz. by the addition of water. At first, it is clear and transparent, but soon changes to an olive gray opaque emulsion that, on cooling, sets to a thick jelly.

When required for use, the emulsion is liquified by immersing the bottle containing it in a dish of warm water. It is best kept in the dark, or in a bottle wrapped in opaque paper. Under such conditions, this emulsion does not appear to undergo decomposition, the glycerine and sulphites of silver and soda acting as preservatives. On heating to a temperature approaching the boiling point of water, decomposition ensues with precipitation of metallic silver in the golden yellow allotropic form described by Carey Lea. Not infrequently the emulsion is of a beautiful purple shade when viewed by transmitted light, indicating the presence of photo salts of silver (*American Journal of Science*, 3rd Series, vols. 33, 38).

This formula affords an emulsion in which the silver salt is strongly restrained, one part of gelatine being combined with two parts of silver salts and eight parts of sulphite of soda. In order to increase the sensitiveness of the silver compound and accelerate the electrolytic action in development, the proportion of the gelatine should be decreased to possibly two-thirds or even one-half of that above given. A few experiments indicate that the addition of Rochelle salts, or a solution of inverted sugar, makes the electrolytic action more energetic.

(To be continued.)

Holiday Resorts and Photographic Haunts.

A FEW DAYS IN NORTH WALES.

By H. S. FORMAN.

It is a great stretch of imagination to think that a fellow, because he is a wee bit photographic, can all at once become graphic with the pen. Still, I most cheerfully make an effort to describe what was a most enjoyable trip to a pair of tripodists. I use this term "tripodists," as that was the title the gamins of North Wales were pleased to dub us with. On our arrival at Llandudno they ejaculated, "Here comes another grand old tripod!"

The first two days of time we thought advisable to spend in looking about, and take our bearings as regards lighting, position of picture, etc., etc. This arrangement we fully carried out, as our first day was Saturday, and the second Sunday, although we had the greatest difficulty to keep from exposing a plate or two, and thereby breaking the Sabbath, there being on that day such a glorious sea, and the light as perfect as you could wish.

Llandudno was our head-quarters. I ought, perhaps, to say a word or two about that most cleanly and healthy resort. For non-photographers I can only say it is the very tiptop *creme de la creme* of all that is beautiful in the female world, and for gorgeous costumes it is not over-doing it to say that Paris itself would be proud of such a fancy fair. Good-bye, ladies, and now for a dark-room, of which we need one handy every day. There are two well-appointed rooms at the News Rooms, and another has been added since I was there; the charges are nominal. Llandudno is a perfect haunt for cameras of every description. There are no end of pictures to be had for the hand-camera man, and not a few for the tripodists. Unfortunately for me, it is not every plate that yields a good picture, and I cannot boast of having more than five presentable ones. Most of the chemists stock Marion and Ilford goods.

A fine treat is to take a little steamer (I think her name is the *Bonnie Princess*) which sails according to tide from the pier Llandudno round the Great Orme Head, into the mouth of the Conway River, past the little town of Deganwy, under the Suspension Bridge at Conway Castle, up the Conway as far as Trefiw.

Lake Crafnant, about two miles out of Trefiw, a most charming place for fishers and camera men. The walk from Trefiw, being for the most part through shady lanes, beside gurgling brooks, is one never to be forgotten. It is firmly fixed in my mind for two reasons. Firstly, the extreme beauty and boldness of the views which continually come before one. Secondly, the extreme heat, which was so intense that the walk cost me the whole of the day, having a whole-plate kit, and resting places came often and lasted long. At Crafnant there is a bewitching little old Welsh cottage, with a dear old Welsh lady who does everything to make your visit a pleasure, with the exception of speaking English. I forgot to ask her name, but you may be sure it was either of the following: Evan, Owen, Jones, Hugh, Davis, as they have precious few others. We got along very well, I showed her some money, and pointed to the pantry and put the kettle on the fire, the result being a first-rate meal with plenty of the finest sauce—hunger. This lovely place made me bang off six plates. This was the only day I used as many as three double-barrels. I do not care to expose plates on everything I see. I met a fellow who had exposed that morning twenty-two plates, and was then changing for more. He calculated upon having one in five good ones; this is simply ruinous to a poor fellow.

I know that Conway Castle is fast becoming tiresome to photographic judges, still I think it is worth taking. Bodidda is close to Conway. There are a great many grand studies here for any one who may have the time to wait for proper lighting, and would well repay the time spent.

Bettws-y-Coed is the rendezvous for artists of every description. I have travelled about a good deal in my time, and have come to the conclusion that I have found nothing more exquisite than Bettws. To describe this place requires a pen of greater power than mine. I, therefore, leave it with the suggestion to anyone who wishes to see Bettws—*go, and stay*. See it in the early morn and in the dewy eve. The saying, "Fools gain wisdom with their own experience, wise men get theirs from the experiences of others," is very true, and I would say, do not do as we did, travel daily to and fro between Llandudno and Bettws-y-Coed, adding up expenses and wasting time in the train, the only good reason for this being the great comfort we had in our lodgings at Llandudno. Another time, if I have the luck to go again, I shall abide in Bettws, as it is the most central for the best scenery. Fortunately, there is a chemist who keeps a general stock of photographic requisites, and he has also a good dark-room available. Swallow and Capel Curig are just a wee bit out of Bettws-y-Coed, and can be easily reached by walking.

Llanberis is another beautiful spot, and being one the nearest stations to Snowdon, is very largely patronised by tourists and holiday seekers. A grand drive by Lake Peris, through the Llanberis Pass to Lake Gwynant, is full of romantic spots well worthy of a plate.

The Welsh people are very kind and anxious to please you; the greatest civilities are always on hand. The children all speak English well, and they are the best guides if you have any questions to ask, as they can be made to understand more easily than the real old Welshers.

To amateur photographers carrying a whole-plate kit, who have aspirations to go to the summit of Snowdon, I would say "Don't." If you still have a mind to go, and are willing to throw away good advice, I would say, "Pick the hottest day you can, and go up the sunny side."

The Gradation on Thickly-Coated Plates.

By R. Child Bayley.

At a recent meeting of one of the societies, a question was asked which ran somewhat as follows:—Since no printing process at present known will render all the gradations obtainable on an ordinary plate, what is the use of a plate which will register still more gradations? As this at first sight seems a pertinent enough inquiry, perhaps a little consideration given to the subject will not be thrown away.

It is a well-recognised fact that a thinly-coated plate, however correctly exposed and developed, will not reproduce perfectly the various gradations of light and shade which are frequently to be met with in, say, for example, landscape work. A very common example of what is meant is to be found in a subject containing in the foreground dark foliage, a good deal of it in shadow, while the sun is shining brightly and a few fleecy clouds are floating about the sky. If such a subject be taken upon a thinly-coated plate the gradations at one end or other will be found to be lost in the print; the sky will print out perfectly white or the shadows a black mass, whatever printing process be used. This result is due to the fact that such a plate will only register correctly a few gradations.

Let us ascribe in the view taken as an example numerical values to the various gradations. The whole scale included may be taken as consisting of a hundred degrees, the white clouds as 100, the blue sky 80, the trees in the foreground 20, the deepest shadows 0. If such a view be photographed upon a plate which is incapable of rendering correctly more than fifty of our degrees of gradation, it is obvious that there will be, either at one end or the other or partly at both, fifty of the degrees incorrectly rendered in the negative, quite irrespective of the amount of density it may possess. These fifty gradations may be perfectly visible on looking through the negative if development be carried far enough, but if it be stopped when the greatest amount of density in the high lights is just sufficient to print absolutely white in the time required by the most transparent part of the shadows to print black, it will be found that these fifty gradations have been lost somehow. The print may be a rough-surface one, or it may be a transparency, but it will be quite impossible for it to reproduce correctly gradations which the negative has failed to render properly.

On the other hand, if the plate be one which is capable of correctly registering the 100 degrees in our view, it will be perfectly possible to reproduce all these gradations properly in the print. To do this it is important to develop the plate with a view to the printing process to be employed—not an easy problem always, but still it is the *one condition* necessary to obtain a correct print. Our plate, we assume, renders correctly all the gradations of the subject; then in developing the aim must be to obtain a negative as described above, in which the very highest lights shall just be dense enough to remain white until the darkest shadows are of the deepest tint the paper will properly assume, when it will be found that no matter how many gradations may have existed in the original subject, they will be reproduced in the print. Some printing processes, such as those in which a rough paper is employed, have a tendency to compress the scale of gradations; others, such as transparencies, to expand it. In other words, the scale as rendered by one process may be 1, 2, 3, 4, 5, in another 2, 4, 6, 8, 10, in a third 10, 20, 30, 40, 50, yet each of these cases, it will be obvious, is a correct representation of the degrees of gradation we have called in our subject 20, 40, 60, 80, 100.

Hurter and Driffield show that it is impossible by variations in development to affect the *relationship* between the different densities in the negative, and this being so it follows that by getting the two extreme ends of the scale of what is known as *printing value* for the printing process adopted, a plate which registers correctly those two extremes will, in a similar manner, reproduce the gradations between them; whether by developing for what is called a thin negative the resulting gradations are 1, 2, 3, etc., or by pushing on with development we obtain one in which the same steps are represented by 10, 20, 30, etc. It will, therefore, be seen that the more gradations our plate will register correctly the wider the range of subjects it is suitable for, it being always within our power by exercising due care in development to compress those gradations within the capability of the printing process to be employed. At the same time there are a very large number of cases, probably an immense majority, where the gradations in the subject are well within the capability of any commercial plate.

Compensation in Development for Variations in Exposure.*

By A. Cowan.

According to promise, I have brought to show you to-night the result of a few experiments on the question of "Compensation in Development for Variations in Exposure," on the lines suggested by Mr. Burton's paper. When the question was brought up at the last meeting, I ventured to say that, from my own experience, I did not think it was possible to get negatives giving identical prints, or so nearly similar that an experienced photographer could not tell the difference between two negatives—one having the so-called correct exposure, and the other forty or eighty times more—unless the range of tones was practically limited to, say, two tones or little more. In the examples I have developed, one plate may be considered to have had a normal exposure, viz., a series of light intensities varying from half a second to thirty-two seconds, each step being double that of the previous one, and in the others an over-exposure of thirty-two times, viz., the first having sixteen seconds, and the last of the seven 1,024 seconds.

I here show you the results, the negatives themselves, and also the curves of the densities as measured by the photometer, and I scarcely think any one can imagine that the various negatives can by any possible means be considered identical. The first one (the normal exposure) was developed with—Pyro, 1 grain; anhydrous sodium carbonate, 4 grains; and potassium bromide, ½ grain; and the three over-exposed ones respectively by doubling the pyro and bromide each time, the last one having eight grains of pyro and eight grains of bromide to the ounce, the alkali in each case being kept constant. The time of development varied from six minutes in the case of the normally exposed plate to one hour and forty minutes in the case of the eight-grain pyro one.

I should explain here that what I tried to do was to make the lowest tint in the scale of each as nearly of the same density as I possibly could, leaving the higher ones to go on in their own way.

I notice that Mr. Burton in his article says his statement is not compatible at all with Messrs. Hurter and Driffield's, where they say the density ratios cannot be altered by development. Now, I think it should be clearly understood what they did say, which, if I understand them, is this: They first define what they consider to be a perfect negative, as one in which "the opacities of the gradations are proportional to the light intensities," and, after many pages of mathematical reasoning and records of many experiments, they say:—

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* Read before the London and Provincial Photographic Association.

"We have thus arrived at an answer to the question, Can negatives be produced such as we defined to be theoretically perfect? and the answer is, they *can* be produced, but only by so carefully adjusting the time to the intensity of the light that the exposures may fall between the period of correct representation."

I must say, from my own trials of Mr. Burton's method, I cannot upset this contention. I may say here that I sent to four members of this Society duplicate pieces of each of the plates here shown, and I hope we may be favoured with the results of their experiments in the same direction. All I can say, in conclusion, that, at the present time, I am not able by Mr. Burton's method to upset the theory that correct exposure is the principal determinary factor in the production of correctly graduated negatives. That abnormal exposures can be made by alteration in development to give certain pictorial results, I am perfectly open to admit; but, in a subject of this kind, that is not the question. But what we are talking about is, Can forty or eighty times the correct exposure be made to give identical results by modification in development?

The Photographic Convention.

SYNOPSIS OF PROCEEDINGS.

Monday, July 3rd.

EXCURSIONS AND PROCEEDINGS.	TIME.
Opening of the Convention and Reception by the Right Worshipful the Mayor of Plymouth (W. Law, Esq.) at the Art Gallery and Lecture Hall of the Athenæum	6.30 p.m.
Presidential Address	7.30 ,,
Optical Lantern	9.0 ,,

(No Excursion.)

Tuesday, July 4th.

STEAMER EXCURSION to the Yealm and the River Tamar. Tavistock.

Wednesday, July 5th.

General Meeting	10 a.m.
Meeting of General Committee	11 ,,
Convention Group at the Guildhall Square	12 ,,
PAPERS.—"Recent Developers," by Mr. E. J. Wall	2.0 to 5.30 p.m.
"Lantern Slide Making," by Ch. L. Mitchell, M.D.	
"Artistic Expression with the Hand-Camera," by Mr. J. Guardia	
"Multiple Films," by Mr. S. Herbert Fry	
RECEPTION at the Guildhall, Devonport, by the Worshipful the Mayor of Devonport (W. Waycott, Esq.)	7.0 p.m.
Optical Lantern	8.0 ,,
PAPERS.—"Some Slides from the Marine Biological Laboratory," by Mr. J. T. Cunningham, M.A.	8.30 to 10.30 p.m
"The Special Properties of the Zeiss Anastigmatic Lenses," by Dr. Paul Rudolph, read by Mr. John Stuart	
"Photography in relation to Medical Record and Demonstration," by Mr. A. Pringle	

(No Excursion.)

The morning and afternoon meetings will be held at the Western Law Court.

The reception and papers in the evening will take place at the Guildhall, Devonport.

Thursday, July 6th.

EXCURSION to Launceston, Totnes, and Down the Dart, Looe, and the Cheeswring:

Leader—Mr. R. Hansford Worth, Leaving Millbay	7.55 a.m.
,, —Mr. G. Barnston. Leaving Millbay	9.10 ,,
,, —Mr. J. S. Hawker. Leaving Plymouth by steamer about	8.45.
PAPERS.—"Some Points in connection with Development," by Mr. C. H. Bothamley	8.0 to 10.30 p.m.
"On the Power of Compensating in Development for Variation in Exposure," by Prof. W. K. Burton	
"Latitude in Exposure and Speed of Plates," by Dr. F. Hurter and Mr. V. C. Driffield	
"Our Pictorial Failures," by the Rev. F. C. Lambert, M.A.	

The papers will be read at the Western Law Courts.

Friday, July 7th.

EXCURSION to Lydford. Leader—Mr. R. Burnard. Leaving Millbay, North Road or Mutley at	7.55 a.m.
Do., Bickleigh Vale. Leader—Mr. Crook or Mr. Moore. Leaving Plymouth	8.25 or 11.20
Do., Dockyard and Keyham Cattewater. Leader—Mr. Tweedy.	
Dinner and Smoking Concert, Western Law Court	6.30 p.m.

Saturday, July 8th.

Council Meeting	9.30 a.m.
EXCURSION to Princetown. Leader—Mr. Burnand. Leaving Millbay, North Road, or Mutley	8.45 ,,
Do., Ivybridge, Leaving Plymouth	10.45 ,,
Do., Virtuous Lady Mines. Leader—Mr. H. Alger. Leaving Millbay	11.20 ,,

After the 27th inst. all communications to Mr. F. P. Cembrano, jun., the Hon. Sec., should be addressed to him at the Photographic Convention, The Art Gallery, The Athenæum Buildings, Plymouth.

Societies' Notes.

MR. H. WALSH is now the Hon. Secretary of the Halifax Camera Club, vice Mr. Kershaw.

POSTAL PHOTOGRAPHIC SOCIETY.—There are a few vacanies for amateurs in this club. Members wishing to join can obtain full particulars from the Hon. Secretary (Mr. J. E. Underwood), Devonshire Square, Loughborough.

THE Aberdare Society, through having no room, is at present unable to meet anywhere. Mr. D. P. Davies will, however, be pleased to distribute lists and circulars from dealers, etc.

INTERNATIONAL EXHIBITION of AMATEUR PHOTOGRAPHY to be held in the Gallery of Arts at Hamburg, October 1st to 31st, 1893.

Purpose of the Exhibition.—To educate and improve the existing artistic taste of the public, and to create such a sense where it is wholly absent. The courteous and valuable assistance proffered by the Governing Board of the Gallery of Arts and the Committees of the various artistic societies at Hamburg will immeasurably assist in realising these aims. Although it must be admitted that photography cannot, in its present stage, compete with its sister branches of art, painting, and sculpture, nevertheless the reflection arises that the devotees of amateur photography have, by their ardent pursuit of the art, as well as by the high skill to which they have attained, almost incurred a duty to their fellow members of the public thereby, inasmuch as a worthy exhibition of their work, especially if an international representation of the same can be effected, is well calculated to raise amateur photography, if possible, to a still higher pitch. But still more will such an exhibition most assuredly improve the taste of the general public, and in order to realise how desirable is the latter it is only necessary for any amateur photographer, irrespective of nationality or domicile, or even for one of his friends whose sense of art has been cultivated by his work, to examine the ordinary show-cases of his professional colleagues. The efficiency of manipulation shown there, generally of very high class, is also far too often entirely ruined by the conventional inartistic pose and surroundings of the sitters, drawbacks due in most cases to the utter absence of real artistic taste amongst the sitting public. The powerful influence which is able to be exercised upon public taste is in no countries more in evidence than in Great Britain and the United States, where professional photographers are, in consequence of the high pitch attained by their amateur brothers of the art, now able to exercise an artistic license with which the uneducated public of the last decade were unable to sympathise and therefore objected to be associated. In the region of photographic progress and inventions also have most thanks to be accorded to amateur photographers. It is sincerely hoped then that the international brotherhood of amateur photography will generously combine in assisting the Committee to present to the population of Hamburg and its visitors a selection of their artistic and technical efforts in all the various branches of the art, forming thereby, as such an exhibition will, one of the most interesting and complete records of various nationalities, the peculiarties of their landscapes and shores as well as the progress of their industries and science, which has ever been got together. Pictures submitted for exhibition may be sent either by amateur photographic associations or by unattached amateurs. No restrictions whatsoever are made as to dimensions, class, or subjects, and it is hoped that the more remarkable objects of nature and of man's industry, as well in architecture as in science, will be worthily represented.

Method and Date of Submission.—All photographs should be sent in as soon as possible. No exhibits will be received after September 1st. In the case of collective exhibits being submitted by clubs each picture must bear the name of its author. The annexed form must be carefully filled out and be sent with the exhibit or exhibits. All parcels must be dispatched post or carriage paid.

Qualifying Conditions.—All pictures submitted must, in order to qualify for hanging, comply with the following regulations:—1. They must be bona-fide productions of amateurs. 2. They must be of such artistic and technical ability as will satisfy the Hanging Committee of the Exhibition. 3. Each photograph (plain or coloured) must be separately mounted upon cardboards (plain or coloured). 4. The name and address of the exhibitor must be plainly and neatly inscribed upon each picture. An exact description of each subject should also be marked thereon.

Prizes.—1. Artistically engraved diplomas and awards of merit. 2. A number of gifts presented by friends of photography.

Publication of Diplomed Exhibits.—A selection of the exhibits to which prizes have been given or awards of merit made will be reproduced in the more important home and foreign journals devoted to art.

No Expense to Exhibitors.—Expenses will not ensue in any way, as no fees for space will be levied.

Return of Exhibits.—Exhibits will only be returned at the special wish and expense of the exhibitor.

Correspondence.—All inquiries should be addressed:—Das Ausstellungs Comitee des Amateur-Photographen-Verein, Hamburg, Schwanenwik 33.

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THE Cheetham Photographic Society have just fitted up studio and dark-rooms at 4, Grosvenor Street, Cheetham Hill, Manchester. The President is Mr. W. T. Wilkinson; Secretary and Treasurer, W. E. Hurnell, 21, Larch Street, Hightown. The society meets at its own rooms, which comprise a large photographic studio and two dark-rooms, to which each member will have access at all times. These are advantages no other society in the district possesses. In course of time apparatus will be erected for enlarging. The lectures and demonstrations can be illustrated in a manner not possible in ordinary meeting rooms. In order to prevent overcrowding in the studio and dark-rooms the number of members will be limited to fifty, so that early application to the Secretary is desirable. Entrance fee 5s., subscription 2s. per quarter, dating from date of entrance. The ordinary meetings of the society are held each alternate Tuesday for lectures, demonstrations, etc., at 7.30 p.m.

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THE Worcestershire Camera Club has been formally closed, but it is hoped to revive the same in the winter on a different basis.

Societies' Meetings.

Aston.—On 15th inst. Mr. Delicate gave the members a paper on "Out-door Photography," a most appropriate title considering the recent hot weather. He divided his subject mainly into the following parts: camera, lens, shutter, subject, lighting, and clouds, dealing with them seriatim. A most instructive evening was spent. The secretary exhibited a generous gift consisting of a splendid lamp, a tank with racks, four developing dishes, etc., from Mr. W. Tylar, who sailed for Chicago on the 17th. At the subsequent committee meeting it was decided to purchase an album, so that members might make a permanent record of their work by inserting a print, subject to its being passed by a "criticising committee" or an honorary judge. It was proposed to do a similar thing with lantern slides.

Croydon.—Following are a number of half-day excursions. A whole-day outing was enjoyed on the 14th inst. to Weybridge, in which district, under the leadership of Mr. H. Maurice Page quite a number of attractive subjects were forthcoming. The party was entertained to a mid-day dinner by Mr. Page at the Green Dragon, Byfleet; subsequently St. George's Hill and Dead Man's Lake were visited. Saturday excursion to Edenbridge.

East London.—General meeting, 13th inst., Mr. Paseo in the chair. Mr. Charles Tylee gave a very interesting demonstration upon the "Carbon Process," which appeared to be thoroughly appreciated by the members present. The field days for the month were fixed for Saturday, June 17th, and Monday, June 19th, to Higham Park. Mr. C. M. Minns promised to read a paper at the next meeting upon "Subjects, Where and How to Find Them."

Fairfield.—The ordinary meeting was held on the 13th inst. The chair was taken by the President (Mr. Mallabar). The subject for the evening was "Printing-out Opals," etc., by Mr. W. J. Belton, representative of the Paget Prize Plate Company. In introducing his subject Mr. Belton said it was really so simple that it hardly needed demonstration. He proved this by putting some opals through the process, getting splendid results. The tones are magnificent, and the whole process should make opals extremely popular. After this was concluded, he introduced the printing-out lantern slide, which were also very simple and extremely satisfactory.

Goldsmiths' Institute (New Cross).—The first meeting was held on the 12th inst., Mr. J. W. Penfold, the President, in the chair, subject, "Apparatus, the Best for a Beginner." The Secretary read a short paper on apparatus in general, and then showed and explained several cameras, etc., which had been lent by Messrs. Brooks and Co., of New Cross. The President gave some very excellent advice to beginners. There was a good attendance.

Hackney.—Meeting June 13th, the President in the chair. Mr. Hudson showed negatives developed with his modification of pyro-soda. Mr. Beckett showed three negatives, each having had a different exposure varying from three to nine seconds, the density in each being equal. Mr. S. J. Beckett showed and explained the Ilford exposure meter. The Hon. Sec. said when he was away from home he had used the paper around the box of plates as a sort of store case by cutting a lid at the end of paper, and sliding the box in and out. Mr. Barnes asked what was the best developer for Eastman films. Mr. Sodeau preferred Amidol. Mr. Salmon showed a home-made camera which could be used in the hand. The Hon. Sec. showed the Uno hand-camera, a cheap article capable of holding twelve plates; he hoped to try the same and report on at next meeting. Mr. Houghton then read a paper on "Advice to Beginners," and advised half-plate camera with plenty of extension, swing back and front, with rigid tripod with large head. For lens, one of 8 in. focus and wide-angle lens. He recommended that really good lenses should be bought, and advised the use of slow plates rather than films. Composition was an important matter and should be well studied before exposing. Mr. Selfe asked when a plate is fixed, and he was advised to leave it for about ten minutes after opalescence has disappeared. Mr. Green asked if frilling occurred if developer was too strong. Mr. Dean recommended the use of alum bath. Mr. Roder thought pyro-developed negatives required clearing baths. Mr. Avent thought beginners should have exposure tables simplified as much as possible. The Hon. Sec. recommended a square camera with the focussing done from the back, as otherwise, when using a short-focus lens, the baseboard would cut off part of view. Mr. Gosling thought beginners should not commence with a hand-camera. Mr. R. Beckett recommended trimming prints before toning. The Hon. Sec. used thin mackintosh, which took up less room and was more opaque than the usual material, and could, in case of rain, be put on the end of the tripod and used as an umbrella.

Harringay.—On 15th inst. the half-yearly conversazione was held, which was in every way a success. It consisted of a programme of music and an oxy-hydrogen lantern entertainment, the chair being occupied by the President, Mr. Dudley Towers, who, in his opening remarks explained the object of the Society, and that owing to its large increase of members they had moved their place of meeting to a more central position. During the evening a set of beautifully coloured views of London and Paris were put through the lantern by Mr. Towers and Mr. Ball, while the Vice-President, Mr. Bennett, presided at the piano.

Holborn.—On the 16th inst., Mr. J. F. Stevens in the chair, Mr. Herbert S. Fry gave a practical demonstration on "The Sandell Plate." Mr. Fry said he had made it a practice never to develop a plate at a club meeting, but as most of the advantages of the Sandell plate had been published, and the members of the Holborn Camera Club were nothing if not practical, he had decided to break that rule and develop a few plates. He passed round a number of prints from Sandell plates, and made a few remarks on the advantages and peculiarities of that plate. Two plates were afterwards developed, Mr. Fry demonstrating, in a most practical way, the method of developing these plates. On the 17th inst., on the invitation of the President of the Holborn Cycling Club, the members of the Camera Club visited Mill Hill, and sat down to tea with the members of the Cycling Club.

Liverpool.—The fortnightly meeting was held on 14th inst., the

President, Mr. J. Hawkins, in the chair. The programme for the evening was a demonstration on "Paget Printing-out Opals and Lantern Plates," by Mr. W. J. Belton. The demonstrator produced several untoned plates, and arranged several baths, combined and otherwise, which several members manipulated under the demonstrator's supervision, the results being highly satisfactory, all shades of tone being got at will. Mr. Belton then went on to explain the mode of printing these plates, which has puzzled so many, and which is simplicity itself. The toned lantern plates were afterwards passed through the lantern, Mr. W. A. Brown acting as lanternist.

Margate.—On the 9th inst. a most enjoyable evening was held, when an exhibition of finished work by members of the society took place. Amongst those who contributed were Dr. Elliott, the President, who exhibited some very choice quarter and half plate prints; Mr. Hobday, lantern slides; Mr. Emptage, a very large collection of lantern and stereoscopic slides, also mounted prints and beautiful enlargements. Mr. Deacon, of Ramsgate, sent four little prints, which were especially noticed; Mr. Houghton likewise some very choice photographs of rural scenery; and Mr. Harvey, the indefatigable Secretary, some prints of local views. The whole collection deserves great praise, and credit must certainly be given to the exhibitors for the patience and trouble which in many instances had most brilliant results. At eight o'clock Dr. Elliott introduced Mr. Hindley, from London, who gave a very entertaining description of a holiday tour through Ireland to a most appreciative audience, numbering about eighty, illustrated by snap-shots, and put upon the sheet by Professor Tweedie by the aid of his powerful limelight lantern. After a vote of thanks having been proposed to Mr. Hindley and Professor Tweedie, and suitably responded to, the company, which included many ladies, departed highly delighted with the evening's recreation.

North Middlesex.—Ordinary meeting on 12th inst. A question was asked as to the best way of copying a daguerreotype, it being very difficult to avoid reflections. One member recommended that it should be done by artificial light, by using two lamps, standing them at the sides some distance away so that the light falls from each side of the picture. Copying could often be done this way, which would be quite impossible by daylight. Mr. Steuart suggested that the method adopted in photographing silver plate might be successful, viz., to form an artificial dew on the surface, which would prevent the reflections from the bright surface of the plate. The paper of the evening was one by Mr. C. O. Gregory on "Dodges." He covered a very wide field, giving hints on every conceivable topic, such as exposure, for which he constructed out of a small weight and piece of string a second meter, developing, dodging by means of a brush, intensification dodges by matt varnish tissue paper, colours, pencil, etc., reduction by rubbing with spirit, printing, vignetting, printing-in skies, etc., etc. The paper was full of matter, and the simplicity of his methods caused a good deal of amusement. Six new members were nominated.

Putney.—This society's outing on the 10th to Burnham Beeches was well attended, and was favoured with very fine weather. Under the able leadership of the Hon. Treasurer, Mr. Wm. Martin, jun., the place was explored, but by no means photographically exhausted; the feeling of all present at the end of the day's work was that much more time was required to secure even a moderate fraction of the many fine subjects, and each had to regret some special favourite which the want of time or plates had prevented him from taking on this occasion. An excellent meal was served on the lawn at Macro's Cottage. The omnibus from Slough stops here, and it is wise to order food to be ready at about 6.30, before commencing the day's work; there is occasionally somewhat of a scramble at this time, as the 'bus leaves at 7.40. The next outing will take place on Saturday, the 24th June, to Leatherhead, Dorking, and Shere, returning from Guildford on Sunday evening; leader, Mr. A. E. Smith.

Tunbridge Wells.—The first excursion of the season was held on 17th inst., when by the kind permission of Lord de L'Isle and Dudley, that old historical building Penshurst Place was visited, which is noted as the birthplace of Sir Philip Sydney. A start was made at 1.30, the journey being through Southborough, Bedborough, the drive along the Ridge, commanding views unsurpassed in Kent, and on to Penshurst through a continuance of lovely scenery, the weather being all that could be desired. Work was commenced at once, the lighting on the exterior of the front facing the park being considered perfect; after which the courtyard, the gateway leading to the baronial hall, and the hall itself, which is considered the finest in the kingdom, had soon a full complement of workers. The fine windows of the hall with Kentish tracery, consist of a square opening in the head with foliation, the windows being crossed with bransome bars embattled, quite unknown in foreign countries. The original hearth still remains in the centre of the hall, with the andirons or fire-dogs for arranging logs of wood, above which was an ornamental opening called a smoke louvre. Each side of the hall are to be seen tables and benches, the trestles or legs, no doubt, belonging to the time of Edward III, having decorated mouldings and, perhaps, were some of the rarest pieces of furniture in England; that, on the raised platform, being where the lord and his more honoured guests were placed. The screen which parts the hall from the passage through the mansion is considered a fine example of wood carving, and was especially favoured. Originally the hall contained some fine pieces of armour, but now they have been removed Some of the towers are very fine. A good view of the church is also obtained from the gardens, which are very picturesque, having fine yew hedges well kept; they are also noted for the fine collection of fruit trees. After all the plates were exposed an adjournment was made to the "Leycester Arms," where a beautiful tea was provided by the hostess, including strawberries, which proved a most welcome repast, at the conclusion of which a start was made for home through Fordcombe, Ashurst, Langton, and Rusthall Common, all delighted with the enjoyable excursion.

SOCIETIES' FIXTURES.

June 22—HEXHAM.—Outdoor Meeting at Blanchland.
„ 23—HOLBORN (Camera Club).—Lantern Night. South African Slides.
„ 24—ROCHDALE AND DISTRICT.—Excursion to Hebden Bridge, and Lumb Valley.
„ 24—HUDDERSFIELD — "Natural History in Education," by S. L. Mosley, F.E.S.
„ 24—BRISTOL (Camera Soc.).—Excursion to Temple Church.
„ 24—SOUTH LONDON.—Excursion to Hampton Court.
„ 24—WEST LONDON.—Excursion to Wimbledon.
„ 24—ROCHESTER—Excursion to Luton, Hook, and Hatchet.
„ 24—MANCHESTER.—Ramble to Chester.
„ 24—PAISLEY.—Excursion to Mauchline.
„ 24—LIVERPOOL.—Excursion to Ingleton.
„ 24—LEYTONSTONE.—Excursion to Greensted Church and Ongar.
„ 24—OLDHAM.—Ramble to Lostock Gralam for Great Budworth.
„ 24—LEICESTER AND LEICESTERSHIRE.—Excursion to Barkley and District.
„ 26—N. MIDDLESEX.—Technical Evening.
„ 26—GOLDSMITHS' INSTITUTE CAMERA CULB — Ordinary Meeting, "Development."
„ 27—BIRMINGHAM.—Social Evening.
„ 27—NORTHAMPTONSHIRE.—Excursion to Castle Ashby and Whiston.
„ 27—E. LONDON.—"Subjects, and How to Find Them," by Mr. E. M. Means.
„ 27—P. S. G. B.—Technical Meeting, "Demonstration of Carbon Printing," by Mr. W. E. Debenham.
„ 28—PHOTOGRAPHIC CLUB.—"Lenses up to Date."
„ 28—LEYTONSTONE (Camera Club). — Second Annual and General Meeting at Head-quarters.
„ 28—LIVERPOOL (Camera Club).—Open Meeting.
„ 29—ASTON.—Social Evening.
„ 29—DUBLIN (Y.M.C.A.). — Competition of Prints by the Members.
„ 29—LIVERPOOL. — Demonstration and Lecture, by Mr. W. T. Wilkinson, of Manchester, on "Photogravure."
„ 30—HOLBORN (Camera Club).—Judging and Comments on the Competition Prints.

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Platinum Residues.—To recover platinum from old platinotype developing solutions, the vessel containing them is heated until the liquid reaches a temperature of 180 degs. Fahr., when a saturated solution of ferrous sulphate in the proportion of one part to four of the oxalate is added. A black precipitate, consisting of finely divided metallic platinum, is thrown down. The supernatant liquid is drawn off, and the precipitate, after being washed, is converted into chloro-platinite or sent to the refiner. It is certainly advisable to save developing solutions, but the acid clearing baths do not contain sufficient platinum to render their preservation of any use.

To Correspondents.

All communications for these columns are to be addressed to The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.

RULES.

1. Write clearly and distinctly on one side of the paper only.
2. Write each Query or Answer on a separate sheet of paper.
3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.
4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.
5. The Editor does not undertake to answer Questions by post.
6. In answering Queries correspondents are requested to mention, in every instance, the *number and full title of the query* referred to.

QUERIES.

6114. **Toning.**—Can anyone recommend a good toning bath for Aristotype paper?—R. G. J.

6115. **Tripod.**—Can anyone recommend light and rigid tripod for hand-camera work?—R. G. J.

6116. **Blue Prusslate Paper.**—Would any of your correspondents kindly give me the formula for making blue prussiate paper, and how to use it?—POTASH IRON.

6117. **Harwich, Walton-on-the-Naze, and Clacton-on-Sea.**—Could any kind friend tell me if there is anything worth photographing at the above named places. Any information will greatly oblige. —C. G. A.

QUERIES UNANSWERED.

May 5.—Nos 6065, 6066, 6067, 6068.
" 12.—Nos. 6071, 6072, 6073, 6075, 6076.
" 19.—Nos. 6077, 6078, 6081, 6082, 6084, 6085.
" 26.—Nos. 6088, 6089, 6091, 6094, 6095.
June 2.—Nos. 6097, 6102.
" 9.—Nos. 6106, 6108.
" 16.—Nos. 6109, 6110, 6111, 6112, 6113.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This we much regret.*—ED. AM. PHOT.

SCISSORS.—(1) You have made a mistake in taking the shadow side of the fountain, and have therefore lost detail in it. (2) Considerably over-toned. (3) Ditto, and spoilt by halation. (4) Ditto, and over-toned, and the long stretch of gravel walk is not pretty. (5) Is this meant for an impressionist picture? It is certainly not in focus. (6) Fearfully over-toned. You are attempting rather too much; if you try to get less on your plate and do not tone so much, you will turn out better work.

P. S. HIRST.—We do not quite understand why your lens should not cover the plate, and cannot help thinking there must be some mistake. Will you send us up a print or negative or the lens, and we would write you.

THORNHILL.—We must write you by post.

H. J. G.—We have made use of your letter elsewhere, and should we receive any letters will send them on to you. Can you not call on us or send us up some results, so that we might give you some help?

L. G.—(1) You must look to the excessively warm weather as the cause of your frilling. We should advise you to replace the ammonia in your fixing bath by ¼ oz. of washing soda and add 5 oz. of methylated spirit, shake well and allow to stand for half an hour and filter. Place the prints immediately they come from the fixing bath in salt and water, about 4 oz. to the pint, then wash. (2) It is not absolutely essential to use alum, but if you cannot get on without it use the alkaline chrome alum bath before toning. The bath will keep for a long time. It might be possible to mix your chrome alum with the fixing bath, though we have not tried it, by dissolving ¼ oz. of chrome alum in 10 oz. water and adding to 2 oz. of sulphite of soda in 10 oz. of water, and adding gradually to one pint of hypo solution, 4 oz. to pint; this might act well. (3) It would not be advisable to try the acid fixing salt for prints. (4) If you get good tones with your borax bath, by all means adhere to it; you would find the same difficulties with others.

G. P. MOON.—(1) The only way to test the speed of your shutter is to drop a silvered or bright brass ball down against a black-board marked in inches and feet, and when the ball is half way down release your shutter. You would, on development of the plate, probably find that the image of the ball was elongated, and then by reference to a table, which will be found on p. 259 of the AMATEUR PHOTOGRAPHER, Oct. 9th, 1891, you will find the speed. (2) Use the quickest plates you can get for snapshot work.

D. TAYLOR.—The marks look as though you had not washed your plates after development and before using an alum bath. Send us up the negatives, and tell us exactly how you work; give as full data as you can.

A CONSTANT READER.—(1) Edwards's isochromatic. (2) Fitch's carriers. (3) Cut films. (4) Beresford's Paragon changing bag. (5) Double the normal quantity of bromide, and reduce the potash to one-fourth, adding more if necessary. (6) Both are the same thing.

J. A. ARNATT.—The cause of your failure was using too much gold. Try the following:—

Sodium acetate	30 gr.
Sulphocyanide	30 "
Chloride of gold	2½ "
Water	16 oz.

Add a small pinch of carbonate of soda to the gold solution before adding same to the sulphocyanide. Wash your prints thoroughly before toning, and carry toning on till on looking through the print there is no sign of redness in the shadows; the blueish tones are caused by excess of gold.

BOTANY BAY.—Jan. 6th, 1893, p. 3.

BRUCE.—Newman and Guardia's Celeritas shutter would suit you.

J. CHRISTOPHER.—Both your negatives are insufficiently developed, and consequently your prints over-printed and over-toned. Intensify your negatives, and do not print so deep, and let us see some more work.

C. BRIGGS.—Both your prints are over-printed and over-toned. Probably you have been using too strong a cold bath or fixing-bath, and eaten the image out. Both baths must be at least half the usual strength. No. I is decidedly effective.

XERXES.—Your fault probably lies in the method of keeping and using the bath. Why you should acidify, and then neutralise, is not quite clear to us. We will try and print for you this week, and let you have prints down.

C. D. RICHARDSON.—Send us up a negative or two to look at, and then we may be able to help you.

W. H. R B.—(1) Chrome alum, 20 gr., water, 1 oz. (2) No, not necessary to filter each time, it is so cheap that you can afford to use fresh for each batch. (3) The quantity is immaterial; use enough solution to well cover the prints. (4) Washing soda is quite pure enough for making the fixing-baths alkaline. (5) Yes, the stearine paper prevents any loss of gloss.

W. E A.—You would find that Adams and Co., or Fallowfield, or Percy Lund would be able to supply you with the album you want, and we would advise those with slits cut for the corners of the prints, so as to obviate mounting. Shall hope to see you at the Convention and have a little chat.

AULD REEKIE.—(1) Instead of the old toning-bath, add a mixture of 20 gr. of salt, and 20 gr. of nitrate of silver. Kitchen salt is quite good enough. Yes, 7 drachms A to 60 drachms B. (2) If you refer to the first column of the paper you will find at the bottom the number of competition. One print only is to be sent in, and it may be either river scenery or sea-scape.

NEMO.—We will try and do what you wish but as the Convention and holidays are coming on we shall not have very much time. Wrap the plates in non-actinic paper film to film and pack in plate-box with plenty of paper at top and bottom, cut two bits of wood ¼ in. larger all round than box, wrap in brown paper.

BARFIELD.—We do not know for certain, but believe the value of the stops to be *f*/11, *f*/16, and *f*/22.

F. E. CURRY.—We will write you as soon as we can. Try Fitch's film carriers in ordinary metal sheaths.

PINHOLE.—You would find in the AMATEUR PHOTOGRAPHER for June 2, a note on p. 360 on pinhole work, which will tell you a good deal. It is not necessary to focus with a pin-hole, but to judge of what you want on the screen, use a lens in the ordinary way, and then replace with pin-hole. Print No. I: The camera was not straight, and lens not sufficiently stopped down to cover the plate sharply. (2) As you were nearer one end of the house than the other you should have used the side swing of your camera, and stopped down more.

EOS.—The relative speeds are said to be, Ilford ordinary 1, Academy 1½, Britannia 1, Sandell 2⅔, Barnet 1⅔; the exposures will therefore be in inverse ratio. (2) The process is a plain or matt-silver printing process, and toning with platinum. There is no book written specially for this process, but Lyonel Clark's "Platinum Toning," published by Hazell, Watson and Viney, Ld., at 1s., will give you all particulars.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence,*** *Every additional* ***three*** *words,* ***one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one*** *word; compound words count as* ***two*** *words.)*

DEPOSITS.—*Money for goods forwarded on approval may be deposited with the Publishers of the* AMATEUR PHOTOGRAPHER, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge* 1s.

PAYMENT.—*All payments are to be by cheques or Postal Orders, made payable to* ***Hazell, Watson, and Viney, Ld., 1, Creed Lane, London, E.C.***

PAYMENTS *should be made in Postal Orders or* ***Postage Stamps.***

CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of 3d. to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* AMATEUR PHOTOGRAPHER, I, *Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* EDITOR, AMATEUR PHOTOGRAPHER, 1, *Creed Lane, London, E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.,*** *or a commission of* ***2½ per cent.,*** *upon the sale price of the apparatus.*

Backgrounds.—Four capital scenic backgrounds (new), flatted oil, on canvas 8 ft. by 7 ft., 22s. 6d. each, —A. Skinner, Photographer, Teddington.

Cameras, etc.—7½ by 5 camera, Scott's patent, long-focus, light, in good condition, with three double slides and cases, price £3 10s.; also ditto, ditto, with four slides, Smith's patent, price £2.—Hotham, Battle.

Cameras, Lenses, etc.—Lancaster's Guinea quarter-plate Omnigraph, scarcely used, perfect, 16s., rapid rectilinear lens, 12 by 10, good as new, will take £3 10s.—Rectory, care of J. T. Birkbeck, 5, Bailgate, Lincoln.

8½ by 8½ studio camera, four double backs, £5, headrests, dipping baths, etc.—Jno. Daniell, Coleshill, Llanelly.

Lancaster's half-plate Le Merveilleux camera, lens, stand and tripod, 25/-, deposit.—Benson, 42, Turret Grove, Clapham.

Dark Slides.—Instantograph, three perfect half-plates, 6s. 6d. each, approval.—Adams, Hermitage Mews, South Tottenham, N.

Dark Tent.—Amateur's large convenient portable dark tent, with sink and cistern, two cupboards with bottles, measures, etc., on strong tripod stand, perfect condition, practically new, £[illegible] 10s.—111, Shakespeare Road, Herne Hill.

Enlarging Apparatus.—Lancaster 8 guinea enlarging apparatus, without lens, in good condition, £4.—Lawson, L.A.P.A., Eberle Street, Liverpool.

Hand-cameras, etc.—Haigh's Turnstile hand-camera, eight quarter-plates or four stereo, instantly and certainly changed, cannot get loose, first-class lens, any speed, sacrifice for 20s.—Fletcher, 100, Paterson Street, Birkenhead.

Kodak, new, cost seven pounds, take five or exchange for Fallowfield Facile.—Fritz, 90, George Street, Limerick.

No. 1 Kodak perfect condition, all accessories, 35s.—Kreyer, 84, Kingsdown Road, Holloway, London, N.

Adams' Ideal, fixed focus, Wray lens, pneumatic regulation brake to shutter, perfect condition, including solid leather case, cost £9 10s., will sell for £6 10s. —A. J. Campbell, 17, Winterwell Road, Brixton S.W.

Rare bargain, Optimus magazine hand-camera, new only £5.—Stevens and Co., Romford.

Quarter-plate hand-camera, built to special order, regardless of cost, by Newman and Guardia, fitted with Dallmeyer's patent detective (Jena glass) rectilinear lens working at *f*/5·6, fitted with iris diaphragm and Newman's diaphragmatic shutter, capable of time or instantaneous exposures down to 1-300th part of a second, rising and failing front, swing back, facilities for using single combination of lens, shaded and open view finders, three magazine backs (two spare ones provided with leather cases and slings) each carrying twelve plates or cut films at option, focussing glass focussing lever and index to distances from 3 ft. to infinity, all in mahogany box, covered with morocco, and provided with leather travelling case; also folding tripod with self-contained head canvas cover, and sling cost over £40, in excellent condition, price £20 net.—E. R. Shipton, 140, Fleet Street, E.C.

Kodak, No 3 Junior, about twenty unexposed films, equal new, £5 15s.—Bygravs, 13, Canterbury Road, Brixton, S.W.

A Kodak, cost 26s., complete with spool, also spool of twenty-four exposures, cost 2s. 9d. cash, £1. B Daylight Kodak cost £3 5s., complete with spool and extra spool of twenty-six exposures cost, 4s. 6d., cash £2 10s. C Kodak, cost £3 5s. complete, with spool and extra spool, 6s. 3d., also leather case, cost 10s., cash £2 18s. C Kodak Daylight, cost £5 5s. complete with spool and extra spool for twenty-four exposures, cost 7s., cash £4 5s.—W. Parker, 96, Westborough, Scarborough.

Ross's rapid quarter lens, portraits or views, cost £5, fine lens, 36s. deposit.—Renson, 42, Turret Grove, Clapham.

Lantern, etc.—Magic lantern, 25s., and tripod, 7s 6d., in good condition. Apply for particulars.—J. C. M., 109, Queen's Road, Plaistow, Essex.

Lenses, etc.—Second-hand, cheap, two Lerebours' half portrait lenses, Grubb's quarter rapid portrait, Grubb's 10 by 8 view, Tench's 12 by 10 doublet.—Walker and Co., 8 and 9, Broad Street, Bath.

Whole-plate rapid rectilinear lens, covers 9 by 7, 10¼ in. focus, very fine lens, best condition, 31s., on approval, deposit.—E. D., 19, Ladbroke Grove Road, London.

Half-plate rapid rectilinear lens, best quality, superb definition, movable hood, covers sharp *f*/8, iris diaphragms, 25s., approval.—W. E., 3, The Pavement, Willesden Green, N.W.

For sale. Lancaster's whole-plate Rectigraph lens, quarter-plate portrait lens by Stanley, cost 35s.; quarter-plate Instantograph complete; 4½ in. condenser by York, cost 22s. 6d., no reasonable offer refused, approval willingly.—John Wilson, Altmore Street, Glenarm, Belfast.

Whole-plate rectilinear lens, Waterhouse diaphragms, by Lawley, London, as new, 63s.—Owen, Prospect Cottage, Stockton, Leominster.

Extra rapid 7 by 5 London rectilinear, Waterhouse stops *f*/8, perfect definition, fine London 9 by 7 rapid rectilinear, best iris diaphragms, magnificent lens, approval, both lenses worth three times price asked.—Miss Summers, Hillesley, Glos.

Quarter-plate rapid rectilinear, iris, detachable hood, splendid lens, bargain, 21s.—Photo, 10, High Street, Harlesden, N.W.

Dallmeyer's 8½ by 6½ rapid rectilinear, £4 10s.; Vogel's Portrait, 8½ by 6½, 3 in. diameter, 10 in. focus, £5.—Jno. Daniell, Coleshill, Llanelly.

Fine rapid quarter portrait lens, by Darlot, nearly new, first-class, 21/-, deposit.—Benson, 42, Turret Grove, Clapham.

Negatives, etc.—Fifty quarter-plate instantaneous negatives, views of London, suitable for making lantern slides. One shilling each, list and specimen, 1s. 3d.—John Stabb, 154, Queen's Road, Bayswater.

Sets.—Half-plate camera, Lancaster's Instantograph quite new, tripod, also two double dark slides, carrier for quarter-plates, dishes, frames, lamp, scales, sale price, 60s., complete.—Address, Wade, 2, Back Parkfield Place, Dewsbury Road, Leeds, Yorkshire.

Morley's half-plate camera, three double dark slides, stand and case complete, and Hockin lens, £3 10s, splendid condition.—A. Cornish, 6, Kirkley Cliff, Lowestoft.

Half-plate instantograph, Optimus lens, three double slides, two shutters, all in leather case, quite new, price £6 10s.—M. Elliott, 10, Woodquest Avenue, Herne Hill, London.

Genuine bargains. **An** unique 10 in. by 8 in. outfit, consisting of Watson's Acme camera, six double backs brass-bound tripod, etc., complete, W.A. rectilinear, W.A. landscape, rapid rectilinear, and L.F. rectilinear landscape lenses (all by Dallmeyer), giving a range of focal lengths from 6¼ to 26 in.; Wollaston diaphragmatic shutter with rotating stops, and Newman's pneumatic break; also flap shutter by Taylor, Son, and Hobson; Dallmeyer's view meter; ditto, high-power focussing glass; and Watkins' actinometer, all fitted in velvet-lined and partitioned leather cases; also Ferrero's magazine film carrier, cost over £80, price £50. Satisfactory reason for selling. May be seen by previous appointment. Also one dozen 10 by 8 Scovill printing-frames, about half a gross of England's and Carbutt's cut films, same size, 100 or more very best English gilt-edged mounts, and numerous sundries for 10 in. by 8 in. outfit. Cash offers wanted.—E. R. Shipton, 140, Fleet Street, E.C.

Quarter-plate camera, splendid R.R. lens, Waterhouse stops, *f*/8, three double backs, rebounding shutter, six printing-frames, tripod stand, vulcanite dishes, waterproof case, lot complete, £3. Particulars and specimen of work may be obtained from—J. T. Morshead, Troon, Camborne.

Lancaster's quarter-plate instantograph, good lens, case, Thornton-Pickard's shutter, Eastman and Walker's roll-holder, £3.—Walker, School House, Rugby.

Stereos. Apparatus.—Stereoscopic hand-camera (6½ in. by 4½ in. plate), six double backs, Dallmeyer's patent rapid stereographic lenses, rectilinear, working at *f*/4; Wollaston diaphragmatic shutter with rotating stops, rising and falling front, swing back, facilities for using single combinations of lenses, and focussing screen. Built to special order at a cost of nearly £40. Price £15 (lenses and shutter alone cost more money).—E. R. Shipton, 140, Fleet Street, E.C.

A Meagher's stereoscopic camera leather bellows, six double dark slides, two single lenses, 4½ in. focus, accurately paired, excellent definition, price £5. Letters—W., 66, Clayton Park Square, Newcastle-on-Tyne.

Sundries.—Two double backs, best London make, quarter-plate, cost 25s., 12s. 6d.; lantern objective, O.G. mount and tube, 10s. 6d., worth 20s.; very fine lantern objective, 12s. 6d., worth 30s.; violin, Strad. copy, with case and stand, cost £3, would exchange hand or quarter-plate camera; pocket telescope, 8s. 6d., cost 21s.—P., 64, Wakehurst Road, Clapham Junction, S.W.

Cameras, enlarging or direct, of hard or soft wood, all sizes, strong and shapely; large wood dishes, large hinged printing-frames, zinc trays wood sides, wood camera cases, chests, stands; drawings and prices, stamped envelope stating requirements.—A. Gilder, West Drayton, Middlesex.

AMATEUR PHOTOGRAPHER, June 26th, 1891, to June 16th, 1893, clean and perfect; offers in cash.—H. Birchenough, 65, Oxford Road, Macclesfield.

Exchange excellent banjo, plated rim, and four bantams, for quarter-plate camera.—G. Maddison, 27, Mercer Street, Manchester.

WANTED.

Cameras, etc.—Wanted, half-plate camera and three double backs, with or without lens. Send full description and lowest price to—Cain, 1, Wellington Street, Millom.

Wanted, quarter-plate instantograph camera alone, without lens, etc., state price.—J. Armstrong, Burnbrae, Rutherglen.

Hand-cameras, etc.—Good hand-camera required, 5 by 4 twin lenses preferred.—Lewis, Commerce House, Carmarthen.

Wanted, second-hand, cheap, Shew's Eclipse quarter-plate, on approval.—Cox, Hermitage, Harrow.

Lenses, etc.—Good wide-angle rectilinear lens, about 6 in. focus.—Hotham, Battle.

Wanted, rectilinear lens by good maker, iris diaphragms.—W. Dunn, Town Hall Chambers, Great Yarmouth.

Magic Lantern and apparatus wanted; exchange roller hand organ, violin, flute, etc.—A. Gardiner, 7, Station View, Bishop Auckland.

Shutters.—Thornton-Pickard shutter or other wanted, former preferred, for 5 by 4 R.R lens, must be cheap, price and description.—F. C., 10, Lyndhurst Road Peckham, London.

Wanted, two Thornton-Pickard's time shutters for 1½ in. lens, hoods with or without pneumatic attachments. State lowest price.—Andrews, Saltburn Villa, Braxfield Road, Brockley.

Tripod.—Wanted, good alpenstock tripod, quarter-plate R.R. lens, Thornton shutter, exchange Benham's guinea ruby lamp or Tylar's Lanternescope.—T., 9, Ospringe Road, N.W.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bijou Enlarging Lantern.—Patent rectangular or square condensers used by Van der Weyde and other eminent photographers, reduces size nearly half; portable, unique, scientifically constructed, beautifully made, and optically correct.

Bijou Enlarging Lantern is the only perfect enlarger, high-class lenses and workmanship.

Bijou Enlarging Lantern, new design, take negatives all sizes, gives uniform illumination. Every amateur and photographer should possess one. Gives universal satisfaction. Enthusiastic testimony everywhere. Prices with or without objectives sent on application. Cheapest and best. Hughes, Brewster House, Mortimer Road, Kingsland, London, N. Before purchasing any lantern get our grandly illustrated Catalogue, a surprise when seen; over 180 choice wood-blocks of the finest and cheapest instruments extant, 6d., postage 3d.

Bargains in Cameras and Sets.—Underwood's whole-plate Field camera, double extension, leather bellows, rising front, reversing and swing back, wide-angle movement, width when closed 2 in., fitted very fine rapid rectilinear lens, iris stops, double book-form slide, folding stand, and canvas case, £7 5s.; half-plate patent collapsible camera, double extension leather bellows, rising front, swing and reversing back, wide-angle movement, very light, width when closed 2 in., fitted very fine rapid rectilinear lens, iris stops, three double book-form slides, and three-fold stand with lower sliding joint, bargain, £6 6s.; half-plate Spanish mahogany camera by Chapman, Manchester, double extension leather bellows, rising front, reversing and swing back, fitted rapid rectilinear lens, iris stops, three double book-form slides, folding stand and case, £4 17s. 6d.; half-plate Spanish mahogany camera by Middlemiss, double extension, best leather bellows, rising front, reversing and swing back, front and back extension for wide-angle, fitted three double slides, Leviathan rapid rectilinear lens, iris stops, works *f*/8, three-fold sliding tripod and case, as new, £6 5s., worth double; half-plate Optimus rapidograph camera, double extension, best leather bellows, reversing and swing back, rising and falling front, fitted three best double book-form slides, metal divisions, clips and catches, Laverne's best aluminium rapid rectilinear lens, iris stops, works *f*/8, three-fold ash tripod and case, warranted as new, £7 17s. 6d.; Lancaster's half-plate Instantograph, fitted Lancaster lens, instantaneous shutter, two slides, and folding stand, £3 17s. 6d.; Lancaster's ¼-plate special brass-bound Instantograph, double extension leather bellows, swing back, etc., three Tylar's medal and one mahogany dark slides, fitted Lancaster lens, iris stops, and see-saw shutter, and folding stand, £2 5s. **All above sets guaranteed as described in every detail. On view, City Sale and Exchange, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.**

Bargains in Hand Cameras.—London Stereoscopic Company's twin-lens Artist hand-camera, fitted Black Band lenses, Waterhouse stops, works *f*/6, adjustable focus, full-size finder, three double dark slides, in solid leather case, £11 5s.; Adams' No. 2 Ideal, fitted Wray's rapid rectilinear lens, time and instantaneous shutter, adjustable focus, two finders, carries twelve quarter-plates, covered morocco leather, finest condition, £7 5s.; quarter-plate Shew's Eclipse pocket camera, fitted Ross' 5 in. concentric lens, rotating stops, adjustable focus, three double book-form slides (camera and slides brass bound), Thornton-Pickard's time and instantaneous shutter, finder, folding bamboo stand, complete in solid leather case, £7; Beck's Frena hand-camera, fitted Beck's rapid rectilinear lens, time and instantaneous shutter, finder, covered leather, fitted with twenty films, finest condition, £4 5s.; special Zoka hand-camera, good lens, shutter, two finders, carries twelve quarter-plates, covered leather, as new, 10s. 6d.; B Daylight Kodak, fitted R.R. lens, time and instantaneous shutter, finder, carries 24 films, covered leather, in solid leather sling case, £2 12s. 6d.; Watson's 5 by 4 hand-camera, Watson's rapid rectilinear lens, iris stops, roller blind, time and instantaneous shutter, adjustable focus, four double slides, two finders, covered real leather, finest condition, £6 17s. 6d.; Ariel hand-camera, leather bellows, fitted Wray's 5 in. R.R. lens, rotating stops, Thornton-Pickard shutter, three double book-form slides, finder, complete in case, as new, £5 10s. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Wray's 18 by 16 narrow-angle landscape lens, Waterhouse stops, diameter of lens 3¼ in., focus 25 in., condition as new, £4 4s.; Wray's 9 in. wide angle rectilinear, suitable for whole-plate to 12 by 10, iris stops, quite new, £4 10s.; whole-plate Ross's rapid symmetrical lens, fitted Waterhouse stops, grand definition, covers well, focus 10½ in., good condition, £4 15s.; Optimus 3B quick-acting portrait lens, fitted Waterhouse stops, works *f*/4, focus 10 in., diameter of lens 3½ in., condition as new, £7 12s. 6d.; 8 by 5 Grubb aplanatic doublet lens, fitted Waterhouse stops, works *f*/8, best condition, £3 15s.; 7 by 5 rapid rectilinear lens, by Laverne, works *f*/8, movable hood, grand definition, covers well, as new, 27s. 6d.; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s.; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works *f*/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s.; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works *f*/8, movable hood, as new, 45s.; Laverne quarter-plate wide-angle rectilinear, finest condition, 17s. 6d.; Dallmeyer c.d.v. portrait lens (1 B), Waterhouse stop, rack focussing, condition as new, £3 17s. 6d., cost £6 5s. On view, City Sale and Exchange Rooms, 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

IMPORTANT NOTICE TO AMATEURS.—Developing, Printing in any process, Retouching, Bromide Enlarging and Finishing, etc., executed with the *utmost* promptitude, and the very best results obtained. Work called for (if in London) on receipt of card. New Price List now ready. Only address:—WILFRED EMERY, 24, SOUTH STREET, BAKER STREET, W.

The AMATEUR PHOTOGRAPHER

Telephone No. 1645

Telegraphic Address: VINEY, LONDON

Offices. 1, Creed Lane, Ludgate Hill, London, E.C.

No. 456. Vol. XVII.] FRIDAY, JUNE 30, 1893. [Price Twopence.

OUR VIEWS.

"To hold as 'twere the mirror up to Nature."—*Shakespeare.*

The Editor is "At Home" on Monday Afternoons from 2 *till* 5 *o'clock, and will gladly give advice upon all photographic matters; and on Thursday Mornings to Members of the Trade, etc., from* 10 *till* 1 *o'clock.*

Our Views.—Illustrated Supplement Postponed—The Japan Exhibition—The Japanese Catalogue—Photo Apparatus Supply Society—N. Middlesex Phot. Soc.—Technical Classes—Salter's Launch Trips—Our Prizes—Conference of Judges—The Recommendations of the Conference—Notice Annual Lantern-Slide Entry Forms.

Flotsam and Jetsam.—By Anchorite.

Letters.—Technical Instruction Classes (Gosling)—The Convention (Cembrano)—Society for Holloway (One who Knows).

Apparatus.—Vevers' Featherweight Slides—Emery's Printing.

Reviews.—"Photography Annual."

Our Town Traveller.—Jonathan Fallowfield.

Holiday Resorts.—Mona's Isle (Wain)—The Thames and its Estuary (Goddard).

Articles.—Photographic Procedure (Wall)—Dodges (Gregory)—A New Developer for Gelatine Dry Plates (Jenney)—Welford's Rapid Toning Bath (Welford)—The Elements of Photo-Micrography (Mikron).

Exhibitions.—Photographic Exhibition at Tokyo.

Societies' Fixtures.

Societies' Meetings.—Ashton—Birmingham—Brixton—Croydon—Durham—Gosport—Hackney—Hexham—Leicester.

EDITORIAL DEPARTMENT.—All Literary Contributions, Queries and Answers, Photographs for Competition or Criticism, Books or apparatus for Notice or Review are to be addressed to the Editor, Amateur Photographer, 1, Creed Lane, Ludgate Hill, London, E.C. *(All communications should reach the Editor on Tuesday.)*

TERMS OF SUBSCRIPTION—

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Postal Union..........	" " 6s. 6d.......	" " 13s. 0d.
Out of Postal Union ..	" " 7s. 9d.......	" " 15s. 3d.

TRADE ADVERTISEMENTS *are received up to Tuesday morning.*

PUBLISHING DEPARTMENT.—All letters containing Subscriptions, Orders, Remittances, Sale and Exchange Advertisements, or other business matters for the Amateur Photographer are to be addressed to the Publishers, Hazell, Watson, and Viney, Ld., 1, Creed Lane, Ludgate Hill, London, E.C. Sale and Exchange *Advertisements (at the charge of Three Words for One Penny) must be received by Tuesday evening's post to ensure insertion in the same week's issue.*

"Amateur Photographer" Monthly Print Competition, No. 50, Landscape.—Latest day, July 17th.—*Prizes:* Silver and Bronze Medal, with ribbon and clasp. One print to be sent in. Entry forms, etc., on receipt of stamped envelope. Address: Editor, Amateur Photographer, 1, Creed Lane, E.C. (Prizes will be announced and prints reproduced and criticised in the Amateur Photographer Supplement, July 28th, 1893.)

We are compelled to postpone our "Illustrated Supplement" until our next issue, as we have not been able to obtain the blocks in time for this issue. It is quite possible that for the future we may postpone the supplement till the first issue of the month following the close of the competition, so that both our printers and ourselves may have a little more time.

* * *

We publish elsewhere an extract from the *Japan Mail* on the exhibition at Tokyo. This is interesting as showing what is thought of the work of well-known men, and in many cases the opinion expressed is by no means flattering.

* * *

The catalogue is a charming production printed on soft crape paper; each page is ornamented with some coloured pictures which bear evidence of having been coloured by Japanese artists.

* * *

We are glad to receive a letter from the Secretary of the society referred to in our last, disclaiming on behalf of the committee any intention of fathering the photographic apparatus supply society.

* * *

The North Middlesex Photographic Society are doing good work in throwing open their technical classes to outsiders. Mr. Geo. Gosling, the Hon. Sec., gives some information and a cordial invitation to outsiders in our correspondence columns this week.

* * *

Many of us living in London, and in England too for that matter, think it absolutely necessary to go far afield for beauty spots, and totally disregard those chances nearer home. One of the pleasantest outings for a Londoner, and we can heartily recommend it to our societies, is the trip from Oxford to Kingston, or *vice versa*, by one of Salter's steam launches. These are well appointed and fitted with dark-rooms, and the fare for the whole journey, which occupies two days, is only 15s.

* * *

Passengers may join or leave the launches at any of the locks or intermediate landing stages, and the fare may be reckoned at 3d. per mile. To the hand-camera worker these trips afford numerous opportunities for good work, and one can easily expose three or four dozen plates in one day without exhausting all the opportunities. A full descriptive pamphlet may be obtained on application to Salter Bros., Folly Bridge, Oxford.

WE have received numerous letters on the subject of our prizes, and so far the general opinion seems to be in favour of medals as against apparatus. So far as we are concerned, our aim is to satisfy our competitors, if such a thing be possible.

THE conference of judges, under the auspices of the P.S.G.B., was, we understand, fairly unanimous as to the conclusions arrived at, and although we shall refer to the recommendations at a subsequent date, we may say that from our point of view the conference will have done work of unprecedented value.

BRIEFLY summarising the recommendations, we find: The judges' decision shall be final, and they shall have power to withhold the awards, or may give special awards if they think it desirable. The judges shall have the right to exclude anyone from the room whilst judging. When the judges have to spend a night from home, they shall not be lodged at the house of any competitor.

THE number of awards is strongly recommended to be limited. No awards are to be made for pictures which may constitute an advertisement for any particular trading firm. Pictures previously medalled must be sent in to a class by themselves. Each picture of a set which has received an award shall be considered as a medalled picture for competitive purposes. An award is to be made to one picture only, unless a set of pictures bear a certain relation to one another.

No distinction shall be made between professionals. No production from the same negative, whether ordinary print, enlargement, lantern slide, or otherwise, can receive more than one award. It is suggested that the number of classes should be as few as possible, and that no money prizes shall be given. No picture shall receive more than one award at the same exhibition. All lantern slides should be judged on the screen.

No matter what individual opinion may be, we think all must recognize that some very valuable suggestions have been made. Doubtless there will be some cavillers, but if these rules are abided by, there is no doubt they will prevent some of the scandals we have lately had.

WE wish to draw the attention of our readers to the following announcement:—In no case will the proprietors of the AMATEUR PHOTOGRAPHER undertake to buy or sell any goods on commission, nor will they be responsible for the safety of any negatives or prints sent to the Editor of the AMATEUR PHOTOGRAPHER for any purpose whatever, although all reasonable care will be taken of the same.

The Editor claims the right of refusing any print, lantern-slide, etc., sent in for competition, without assigning any reason for such refusal. The judges' awards in any competition shall be final.

WE hope to have the entry forms for our Annual Lantern-Slide Competition ready for delivery next week. We are contemplating making a few alterations in the conditions, which will enable younger as well as more experienced workers to compete.

Flotsam and Jetsam.

THERE was a pleasant article in the last number of the *Cosmopolitan*, that delightful American magazine, which might have arrested the attention of any photographic reader turning over its pages. It was on Donna Emilia Pardo Bazan, who is said to be the first novelist of Spain; and, referring to the remarkable illustrations furnished to her works by Cabrinety, the following sentence was used:—"One finds it difficult to believe that Cabrinety's figures are not drawn from instantaneous photographs, so real are they, so strongly differentiated, until one perceives that their art is too real, too natural, to be that of photography."

ONE would almost say that a feminine pen indited that sentence, which is yet true enough in thought, in spite of its seeming inconsistency. It is a striking tribute to photography, in any case, and probably correctly gauges its true place in art when it is really good work. Photographers can hold the mirror up to nature and produce real pictures, though they must ever be below the work of the artist of genius—that genius which is an infinite capacity for taking pains. The capacity in the case of the camera is finite.

THERE is a "society lady," so the papers say, who has hit upon a really charming idea. She has a large family, and everyone knows how in such big home circles the individual members form special attachments to particular plates, or cups and saucers. In the family in question the photograph of each member is reproduced on the breakfast service, each cup, saucer, and plate containing the portrait of the user.

THE fashion will spread, no doubt, and is susceptible of very interesting developments. For instance, one might get tired of seeing one's own face looking at one from the plate, and might prefer "the counterfeit presentment" of a friend instead. The poor bachelor in lonely rooms would naturally welcome the faces of far-off dear ones looking at him from under his toast, and meeting his lips as he finishes his coffee.

OF course, photography, like all things else, has been connected with the Panama scandals. In the most recent development of them, poor M. Millevoye described how the papers alleged to have been stolen from the British Embassy were photographed. This has now become by far the most expeditious and accurate method of preserving copies of important documents. In such cases the camera tells no lies.

A CONTEMPORARY which has a column headed, "Something New and Strange," publishes a suggestion from a correspondent that decidedly justifies the heading under which it appears. It is apropos, too, at this picture-exhibition season. The writer asks if it would not be a good plan for those who much frequent the galleries to attach to their shoulders "a contrivance resembling the instrument of torture with which photographers endeavour to keep the heads of those who sit for them still."

THERE are still photographers, of course, who make use of this "contrivance," but we prefer by far the plan adopted by a celebrated artist—he can be called nothing else—in a city up in the far north. The sitter is placed at his or her ease, and engaged in conversation, and so easily does the talk soon flow that the real man or women is wooed out of the attitudinising shell which is usually assumed under the consciousness that one's likeness is to be taken.

THEN at a fitting moment a signal is given, and an operator who has been waiting for it, exposes his plate, and the thing is done. No portraits, it is said, and it is easy to believe, are such "speaking likenesses" as these.

Messrs. Dowdeswell's galleries just now are deserving of a visit from all those who aim at excellence in the various departments of photography. There they will find an exceptionally good collection of old English pictures, which seems to be even better than the two previous collections exhibited at these galleries. Innumerable lessons in composition, suggestions for those happy little pieces of genre work in which photography shows to such advantage, and fine examples of the highest kind of portraiture are here to be found, and all will well repay *careful* study.

Anchorite.

Letters to the Editor.

TECHNICAL INSTRUCTION CLASSES.

Sir,—The great success of the series of instruction evenings held by my Society, which has just finished, and the keen appreciation shown by those gentlemen who attended, has induced the Council to arrange another series for the ensuing half-year. The course is as follows:—July 15th, Personally conducted outing; July 19th, Development, modified to soften harsh contrasts or brief exposure; Aug. 19th, Personally conducted outing; Aug. 23rd, Development modified to improve flat subjects or over-exposure; Sept. 20th, Lantern slides by contact; Oct. 18th, Cold-bath platinotype with glycerine development; Dec. 20th, Bromide paper.

There are no fees of any kind for attending these classes, and we throw our doors open to gentlemen who are not members of our society, so far as our space will permit.

If those gentlemen who are strangers to us would like to take part in this series, will kindly write me, I will send them fuller particulars than I dare trouble you with.

Trusting that you can afford me space for this announcement,—Yours, etc.,

Geo. Gosling
(Hon. Sec., North Middlesex Phot. Soc.)

* * * *

THE CONVENTION.

Sir,—It may be of interest to those of your readers who intend attending the Convention to know that the Great Western Railway issue third-class excursion return tickets to Plymouth for 21s. by the trains leaving Paddington, on Saturday, July 1st, at 7.55 a.m. and 1.55 p.m.

Passengers can return on the following Saturday, Monday week, Saturday week, or Monday fortnight.

Times of return trains to London on Saturdays and Mondays, 8 a.m. and 12.30 p.m.—Yours, etc.,

F. P. Cembrano, Jun.,
(Hon. Sec. Photographic Convention of the United Kingdom.)
10, Cambridge Gardens, Richmond Hill, Surrey,
June 24th, 1893.

* * * *

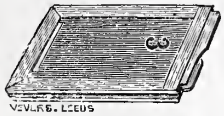
SOCIETY FOR HOLLOWAY.

Sir,—I think it is really a pity your correspondent, "The Secretary of the Northern Association," does not get well versed in matters photographic, before he commences to argue through the medium of the photographic press. Might I say, Mr. Editor, that the society of which your correspondent does not know is the photographic section of the Upper Holloway Cycling Club? There is also another huge error your correspondent made, but as it may hurt somebody's feelings I will not make it public; however, time will prove as to whether his particular statement was correct. I would also draw your correspondent's attention to the fact that the Finsbury Park or any other society did not ask his opinion which society was the most flourishing. I am afraid your correspondent has got the wrong idea of what a society should be; in my opinion they should not be antagonistic, but helpers one of another. To put the whole thing into a small compass, I think your correspondent's letter was quite out of the place, and very uncalled, and I might give him one word of advice: before he argues again I would advise him to make sure his argument is correct. Apologising for troubling you, I remain, yours truly,

One Who Knows.

Apparatus.

VEVERS' FEATHERWEIGHT DOUBLE SLIDES.



C. C. Vevers, of 12, Market Street, Briggate, Leeds, has sent us a sample of the above, which are very light and safe in use. In form it is of the solid shape, the plates being inserted from one side. The framework of the slides is mahogany, but the shutters are made of Willesden paper. They are about half the weight of the ordinary double-back, and should find many friends, as they are good value for the money; the quarter-plate size costing 2s. 9d. each, the half-plate 4s. 6d., and the whole-plate 6s. 6d. The slides are sent out with the outer grooves uncut, so that any cabinet-maker can fit them, or they will be fitted to camera at an extra charge of 1s. 0d. for the three.

PLATINOTYPE AND GELATINO-CHLORIDE PRINTING.

Mr. Wilfred Emery, of 24, South Street, Baker Street, W., sends us some capital examples of printing on the above papers, and informs us that he is now using more chloride paper than all the others combined, as he can get richer and more brilliant results.

As samples of printing and retouching, Mr. Emery's work is worth seeing, and as his prices are reasonable, we recommend our readers to give him a trial.

Our Town Traveller.

JONATHAN FALLOWFIELD, 146, CHARING CROSS ROAD, W.

In the old wet-plate days there was probably no name so well known as Fallowfield's, of the Lower Marsh, and three or four years ago a migration was necessary, and at the above address, a few doors from Oxford Street, the present warehouse was opened. Crammed from top to bottom with goods of all kinds, in fact it is possible to obtain here everything photographic.

Our visit the other day, however, was to specially examine the new hand-cameras, the '93 and '94 Facile and the Premier.

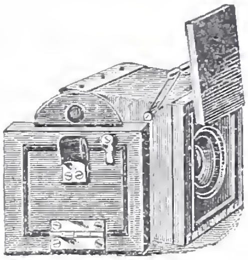
The '93—'94 Facile.

Constructed somewhat on the lines of the older and well-known camera, the essential feature is that the new one is arranged for focussing. The new camera is just about the same size as the old, and the plates are stored in grooves, but there is this great advantage, that by means of a lever and index any particular plate may be exposed, so that one may carry plates of different brands or rapidities. On turning the camera upside down and moving the lever to the desired index number, the plate falls down into register, and the lens and finders immediately and automatically uncap themselves, and on what is now the top will be found the focussing index and diaphragm scale and shutter release. The lens is the same which has made such a name for itself on the Facile, and the shutter is constructed on the same principle, but is actuated by a spring, which not only enables one to give shorter exposures, but also gives a very even and regular movement. Very deeply sunk central finders are also provided. Another advantage which this camera possesses is that the shutter release and the focussing are on the top when the camera is used, but are at the bottom and out of sight when it is carried. The outside of the camera is blackened and cross-grained, so as to look exactly like leather, this being an advantage, as it is not so likely to wear white so quickly as leather, and can easily be blackened. The price of the camera is £7 7s., and it is fitted with lock and key.

THE "PREMIER" HAND CAMERA.

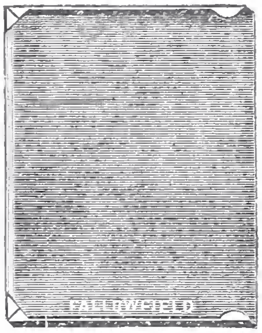
This is an extremely neat morocco-covered camera, small in size, 10 by 5¼ by 5½ in., and only weighing 4½ lb. when charged with twelve plates. It is fitted with a Newman and Guardia bag changing-box, which is constructed to hold twelve plates or films in sheaths, or one may be had for twenty-four films. The shutter is a special self-capping shutter working up to $\frac{1}{100}$ sec., so that it may be set whilst the plate is ready for exposure, and is set by means of a piece of catgut, and the setting and the speed, index, and release and diaphragm are all on the top of the camera, so as to be in sight at the moment of exposure, thus avoiding any doubt as to whether the shutter is set or not, and the finder and focussing scale being also on the top, the operator has everything absolutely under his nose, so as to eliminate all possible chance of mishap as far as possible. A celluloid focussing screen is also provided, which is examined through a small door at the back, so that no focussing cloth is required. The front of the camera is entirely removable, so that every part of the camera is getatable for cleaning or examination. The lens is specially made by Wray, and will cover a 5 by 4 well, although the camera is made in two sizes—the quarter-plate at 11 guineas, and the 5 by 4 at 14 guineas. This camera will be found practical and efficient, and from its small size and lightness specially suitable for ladies.

THE "NIMBLE" CAMERA.



Another novelty which will find many friends is the Nimble camera. This type has been specially constructed for use with ferrotype dry plates, and is fitted with a double combination lens and six single slides, fitted with sheaths to hold the plates, which measure 1⅞ by 1½ in., a spring exposing shutter, and a focussing screen. The price of the whole complete is only £2. Many of our readers wish to "turn 'em out while you wait," and by the use of this camera and the special dry plates, which give excellent results, they may rival the peripatetic photographer of the beach and road.

CHEAP SHEATHS.



Another cheap line is metal sheaths for hand-cameras, only 2s. 6d. per dozen, and at this price worth attention from every hand-camera worker.

Of course we asked after the "Annual." Having got rid of our incubus, we felt a sort of unholy joy in asking after Fallowfield's, and heard it was well on the road, and would contain some special lines in stick stands for hand-cameras, and also a twin-lens hand-cameras, besides many other good things, which we shall see in due course. We need hardly add that special attention is paid by Fallowfield to post orders, and anything will be obtained to order, though it must be something extraordinary if not in stock.

P.O.P. MOUNTS.

Another novelty which will commend itself most warmly without any words of ours, to nearly every one of our competitors, and hundreds of our readers, is Fallowfield's new P.O.P. mounts. These are neat cut-out mounts, into which the print is slipped, thus avoiding any trouble of mounting, so that any particular surface is entirely preserved. They are neat in appearance, and suitable for all classes of subjects. Prices 1s. for quarter-plate, 1s. 3d. for half-plate, 2s. 3d. for whole-plate, twelve in a box.

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Reviews.

Photography Annual. Published by Iliffe and Son, 3, St. Bride Street, Ludgate Circus, E.C. Price 2s. 6d.

Compiled on exactly the same lines as last year, this annual is now to hand. Besides the old "Tips for Tyros" it contains the usual summaries of different departments of photography, and the apparatus section, which contains a notice of the various novelties which have appeared during the past twelve months. A capital frontispiece, on Morgan and Kidd's bromide paper, certainly carries off the palm of the illustrations, the three collotypes not being up to its standard by a long way.

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Holiday Resorts and Photographic Haunts.

MONA'S ISLE.

By E. B. WAIN.

THERE is no reason to wonder at the ever-increasing popularity of the Isle of Man as a pleasant resort when the facilities of access, the ample accommodation for all classes of visitors, the variety of amusements, and the great natural beauty of the island are considered. Every year seems to bring further improvement in the already excellent steamboat service between Liverpool and Douglas, the Barrow line of steamers keep up their high standard of comfort and efficiency, and a good service has been established between Douglas and Fleetwood, Whitehaven and Belfast.

To the crowded masses of population in Lancashire and the Midland manufacturing districts, who form a very large proportion of the visitors, especially during the excursionist season, these facilities have proved to be a great boon, and it is hardly possible to imagine a more health-giving holiday than the short sea trip and the genial climate of Mona's Isle offer at small outlay to the tribes in our northern towns.

To the photographer the varied and beautiful coast and inland scenery, the old-fashioned harbours and fishing ports, and the decidedly picturesque Manx folk present many attractions; and if care is taken to visit Manx land when it is not too crowded with August visitors, the holiday will be a most enjoyable one, and in any case full of photographic possibilities.

As a rule, the light is particularly good, especially on the east side of the island, and the ordinary exposures given for landscape work in the Midlands will be found to be very excessive. The difficulty throughout is to keep the exposures small enough.

The writer has found that in diffused midday light in July and August, with Ilford ordinary plates, $f/8$ stop, and pyro solution developer, it is quite possible to get fully exposed plates on many subjects in Douglas when working with a Thornton-Pickard shutter working at its highest speed (1-80th sec.).

Mr. Harrison, of Walpole Avenue, has a fine dark-room (on AMATEUR PHOTOGRAPHER list), keeps a good stock of most sizes in Thomas' and Ilford plates, and is always willing to give any information in his power as to the best time to visit the different parts of the island. As he is a most expert landscape photographer, his opinion will be found of great value to the visitor.

The southern part of the island, which includes Douglas, Castletown, Port St. Mary, Port Erin, and Peel, will be found to be the best photographically.

Douglas presents many good opportunities for work.

The bay and harbour are full of life and motion, and offer some good shots from the steamers as they enter or leave the harbour.

Further up the harbour the groups of people waiting for the ferry boat, the "mudlarks" playing in the water when the tide is low, and the Norwegian timber vessels discharging their cargoes, all make good subjects.

Peel is full of pictures, and perhaps the first that strikes the eye on leaving the railway station is the group of fishing smacks lying in the harbour, with the old castle in the distance.

Port St. Mary, with its boats and natives loading seaweed and mending nets on the beach, is always picturesque, although modern improvements have somewhat altered the character of the place of late.

Laxey village and its river rushing over the boulders is well worth a visit.

Space will not allow attention to be called to all the objects of interest, but, in conclusion, it may be said that the most energetic amateur will find enough work to make him wish to see Mona's Isle again and again.

Photographic Procedure.

By E. J. Wall,

Author of "The Dictionary of Photography."

(*Continued from page* 401.)

Section VII.

FIXING AND CLEARING.

In our previous note upon fixing I omitted to mention that Dr. Andresen* has placed a very convenient acid fixing salt on the market, which dissolves readily, far more readily in water than hypo, and this may also be obtained in cartridges. Marion and Co. have also introduced the acid fixing bath in cartridge form, and both these present considerable advantages for tourists especially, as well as ordinary work, as there is no trouble of weighing out the salt.

Another important question is how long to fix. The rule for this should be that the plate should remain in the fixing bath at least ten minutes after it is absolutely transparent, and in my own practice I invariably use two fixing baths of the same strength, 1 : 4, and leave the plates in the first till quite transparent and clear, and then transfer to the second bath, in which they are allowed to remain for fifteen minutes; this ensures thorough fixation and is no more trouble and expense, for as soon as the first bath gets very dirty the second takes its place and a fresh one is made up.

When thoroughly fixed the negative should be removed from the fixing bath, and excess of hypo or adherent solution thoroughly rinsed, and then the plate set to wash. It has been recommended by some to clear the negative at this stage, but as all clearing baths contain acid it is quite possible to produce a deposit of sulphur, therefore we recommend the use of the acid fixing bath, which obviates clearing.

When washing a negative is spoken of, numerous effective washers rise up in one's mind's eye, but of these I do not intend to speak, except to say that where there is plenty of water they are a great boon, as a good one acts quite automatically. It really is not of very much moment what the exact construction of the washer is, as long as the water is constantly changed. I should prefer one in which the negative was placed at an angle with its film downwards and was raised an inch from the bottom of the tank, and in which the water was kept on the move, and changed about every ten minutes. To those who do not care to invest in a washer, one of the best is the ordinary household pie-dish. In a suitable size it is possible to rest a negative film downwards, and thus enable the water which dissolves out the hypo to sink to the bottom. Ordinary photographic dishes may be, of course, utilised in the same way. All that is necessary is to provide some support for the corners of the plates to rest on, and I use a lot of old wide-mouth-bottle stoppers. A dozen or more of these placed in a 15 by 12 dish and covered with water will allow of a lot of smaller plates being rested on them for washing, and if the water be changed every ten minutes or so, it is astonishing how quickly the greater bulk of the hypo may be removed.

The last traces of hypo are by no means easy of removal, and unless some chemical means are taken for the same end, one may wash for a long time and yet find by chemical tests a trace of hypo. For this reason it has been recommended to use certain salts or solutions which are called hypo eliminators, and whilst I am loth to recommend these as a substitute for a thorough washing, they are undoubtedly of value to remove minute traces of hyposulphites, which may prove troublesome in after-operations. Numerous have been the hypo eliminators recommended, viz., alum, eau de Javelle, or hypochlorite of potash, and other hypochlorites, a solution of iodine in iodide of potassium, etc. As most of these hypo eliminators act as clearing baths also, we may safely include the two operations in one.

After thoroughly well washing the negative it may be treated with the clearing bath, which may be chosen from the following formulæ:—

The Acid Alum Bath.

Powdered alum	2 oz.
Citric acid	¼ „
Water	20 „

Iron and Alum Bath.

Citric acid	1 oz.
Alum	1 „
Sulphate of iron	3 „
Water	20 „

This was suggested by B. J. Edwards in 1884, and directed to be used immediately after fixing and as soon as all adherent hypo was rinsed off. It was suggested to make it up in two solutions—the acid and alum in one, the iron in the other, and if clearing and a slight reduction of density was desired the acid and alum alone should be used, whereas if a slight intensification be required the iron alone or mixed with the acid and alum should be used. Probably any reduction or intensification is due more to change of colour than anything else.

The Acid Chrome Alum Bath.

Chrome alum	1 oz.
Citric acid	¼ „
Water	20 „

Hydrochloric, or, in fact, any mineral acid should not be used, as there is a great tendency to frilling, and, in fact, with chrome alum and hydrochloric acid in equal parts, *i.e.*, 1 oz. of each to the pint, almost any negative may be stripped.

Eau de Javelle.

Chloride of lime	1 oz.
Carbonate of potash or soda	2 „
Water	20 „

Mix the lime with half the water, dissolve the carbonate in the remainder, and mix the two solutions, and boil for a minute or two and filter. For use, add 1 drm. of the clear solution to every ounce of water. As long as the dilute solution smells of chlorine it is effective.

Hypochlorite of Zinc.

Belitzski and Scolik have recommended this very strongly, and it is made as follows:—

Chloride of lime	200 gr.
Water..	20 oz.

Mix first into a paste, then add the remainder of the water, and then add—

Zinc sulphate	400 gr.
Dissolved in water	2 oz.

Allow to settle, and decant or filter. One part of this solution added to six parts of water may be used, and the negative bathed in it for two minutes.

According to Eder, iodine in iodide of potassium solution is not advisable, as the unstable tetrathionate of soda is formed. Lately several of the German writers—Eder, Stolze, etc.—have suggested chloride or sulphate of aluminium as preferable to the ordinary alums, but so far these salts are not so readily obtainable in England.

Whichever be the method adopted, the plate should be thoroughly well washed afterwards.

(*To be continued.*)

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* Wholesale agents: Schwarz and Co., 9, New Broad Street, E.C.

Dodges.

By C. O. Gregory.

(Continued from page 419.)

Cardboard Shades.—For landscapes a bent cardboard shade is very useful, and is a simple means to dodge a negative with a thin foreground. If any clouds are in the negative it will help, if not entirely, bring them out. I show you an instance of a print from a negative without a shade and another using a shade, and I recommend you to try it. I first saw this idea mentioned in a paper by Mr. Blanchard, and I consider it a valuable dodge.

Negatives are further dodged by working on the back. In the case of a group some of the faces may print too dark; in that case a light touch of pale blue paint on the back of the negative will improve the print; also tissue paper can be pasted on the back or gummed by the edges and worked on with a pencil or crayon to increase the high lights, cutting away parts of the paper to increase shadows. I show you a portrait which I think treatment of this kind has improved. It is from the negative of one of our members who kindly lent it me to experiment with. No. 1 is a print from the negative in its first state, No. 2 the same after intensification with mercury and ammonia, No. 3 is after the negative had been backed with tissue paper and worked on roughly with pencil to take out the brick marks, also vignetted. The cabinet is from the same negative printed in a half-plate frame as before described.

Matt-varnish on the back of the negative is also another means of improving a print, but, unfortunately, it is a dodge of itself how to get the varnish on the plate, and I do not think it will be out of place to describe how it is done. When you first try it you will perhaps get the varnish on the under side of the plate or over your fingers, up your sleeve, and on the carpet, in fact, anywhere except the right side of the plate.

To practise the trick I can recommend you thin gum water; it does not cost much if wasted, and it will flow in about the same manner as varnish, if not too thick.

To coat a plate with matt-varnish the plate must be cold, with spirit varnish warm. Take the plate at the left-hand near corner by the thumb and finger of the left hand, hold it in a horizontal position, supporting it by the tips of the extended second finger. Pour the varnish in a pool in the middle of plate, then gently tilt the plate so that the varnish slowly runs to the corner held between the thumb and finger, then tilt it to the other left-hand corner, then to the right outside corner, finally, with one gentle sweep, pour the surplus off at the corner nearest you on the right-hand side, gently rocking the plate at the same time to prevent lines forming. The plate must now be laid at one side to dry, and when dry and hard can be worked upon with pencil and brush and parts scraped away with the knife to increase the shadows if necessary. This mode of dodging is useful to put clouds in a weak sky. Get a suitable cloud negative as a guide, and with pencil or crayon, and stump to shade off, copy as well as you can the cloud negative; with a little practice it is easy to get passable results. A blue pencil is one of the easiest articles to work with I have ever tried.

When thinking over this matter it occurred to me to try ground-glass itself, and I think (after trial) that it has some advantages. It is remarkably easy to work upon and can be used over and over again. To use it, take a piece of ground-glass and place it ground side up on the top of negative, film side up; work on it to increase high-lights as usual with black and blue pencil, blue for medium effects. To increase the shadows it is not possible, of course, to scrape away the matt, but the same effect can be obtained by thin gum water; put it on lightly with a small brush, the thinner the better (this is important, because if thick it will have a diminished effect), and let it dry. After doing what you think necessary, place the ground-glass at the back of negative, the ground side next back of negative, then print as usual. A softer effect will be produced by placing the ground-glass on the back of the negative, working on it and printing in the same position. In the former case only one thickness of glass intervenes between the ground side of the glass and the film of negative; in the latter case there are two thicknesses. If you wish to use the ground-glass again, the work can easily be removed by that useful kind of soap that "won't wash clothes." Matt varnish is inferior to ground-glass because of its liability to damage.

Vignetting.—There are many ways of doing this, and many effects to be produced. A good plan is to make a cardboard screen for the purpose to go on top of printing-frame, leaving a space between negative and cardboard; cut a hole half inch smaller than you wish your vignette to be, then gum tissue paper round the edges, also a piece of tissue paper over the whole aperture; this softens the effect to a large degree. It is also advisable, in fact with gelatino-chloride paper necessary, to stuff wool between the cardboard and glass, to prevent the light unduly spreading over the whole print.

Double Printing.—On looking through my negatives I selected one with a cow, and decided to transfer her from Chingford to Hampstead Heath. I then printed the cow on a piece of sensitised paper, cut out the animal with a penknife on a piece of glass, and stuck the piece cut out on the Hampstead negative where I wished the cow to appear. The other part of the print was stuck on the negative of the cow, so that the cow could be seen exactly in the aperture. It was then necessary to cover up the other part of the negative with opaque paper. The cow was then printed on a piece of sensitised paper in the position required, then a second print from the other negative, taking care that the cow already printed was exactly behind the mask, and the trick is done, more or less cleverly, according to the care and skill exercised. There are other ways of doing this, but the example is as good as any.

Distortion.—It may sometimes happen that, notwithstanding the use of a swing-back, distortion occurs through the camera being pointed too much towards the sky. This can be cured as follows:—First make a transparency in the enlarging camera, tilting the negative and plate for transparency until the picture appears as it should do. Develop the transparency, then make a negative from the corrected transparency, or, if the transparency is not quite right, the negative can be further corrected in the same manner, and with care the result should be satisfactory.

A Shifting Back Printing Frame.—This frame I bring under your notice was some time ago broken and repaired in such a manner as to be useless, owing to the back so easily shifting. For a time it was discarded, but it has since been found useful in placing prints on the negative again in cases of under-printing. Place the negative in the frame and secure it to prevent it shifting, then place the print to be corrected as nearly as possible in its proper position, fasten up as usual, and it will be found that the back and print will shift about together, so that by looking at the front it can be accurately adjusted to the negative with very little trouble. I find it useful when letting inexperienced persons do printing, as I can quickly correct a dozen prints, and find it a useful contrivance.

Exposure.—There is often a great discrepancy in the calculation of exposures by different persons, in my experience as much as six to eleven. The pulse beat in middle-aged persons is nearly correct for seconds. A dodge is also recommended of repeating as rapidly as possible 1, 2, 3, 4; 2, 2, 3, 4; 3, 2, 3, 4; 4, 2, 3, 4, and so on, each four figures will so nearly represent seconds that the difference may be disregarded. It is also recommended to hang from under the tripod head, a small weight on a cord 40 in. long—39 in. I believe to be correct. This will give seconds each sway of the weight. A much shorter cord is undoubtedly more convenient, such as used on an exposure metre in the market. This to give half seconds should be 9¾ in. long. The swing and return will be one second. Considering the inventive genius shown in photographic matters, I am surprised that no one has yet placed on the market a small simple seconds-ticking instrument, so that by giving a few turns the instrument would tick seconds when required. It seems to me to be a want in the dark-room when enlarging.

Toning.—When I first tried gelatino-chloride printing-out paper, I found great irregularity in toning; the first prints toned all right, but the last of the batch hardly got any gold, owing to the greediness of those first dealt with. This difficulty can be overcome in the following manner. Suppose there are eighteen prints to tone, make up the toning-bath, pour half of it into the toning-dish, and place six prints in it; when they are toned, take them out and add half of the remaining bath to that already in the dish, and tone six more; take them out and add the remainder of the bath, and tone the remainder. All the prints will by this arrangement be toned in a regular manner. I mention this because I have heard of this difficulty twice within the last few days.

Registering Clouds.—This is a subject which I think deserves some consideration. Clouds too often look very funny in our landscapes, printed without much regard to lighting, and my object in mentioning this matter is to suggest a method of knowing what clouds will fit a landscape. In one of the journals some time ago there was a paper on the subject, and it was recommended to take various particulars, time of day, point of the compass, and a diagram—rather a complicated proceeding, and I confess that I did not get quite to the bottom of it. My plan is a simpler one, and is this: Paste on the top of camera a small piece of cardboard or paper marked like the face of a watch, with the XII. pointing the same direction as the lens; when a plate is exposed draw an imaginary line from centre of cardboard to the sun, and mark the plate in your exposure plate the number the line intersects—say it is 8. No. 8 cloud, and No. 8 landscape will always fit, No. 8 cloud reversed will fit a No. 2 landscape, and so on. The number need not be very exact, a No. 5 or No. 7 cloud may do for No. 6 landscape. I don't say the cloud will suit, I only say the lighting will be the same. The altitude of the sun should perhaps be taken into consideration, but this can be readily discovered by referring to your note-book for

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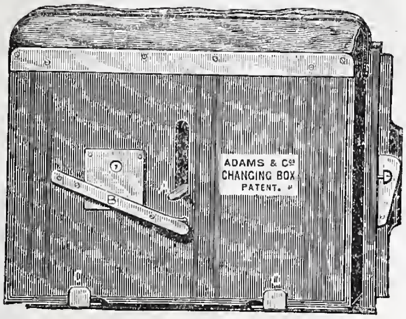

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1. The 'Adams' Changing Box, when required for Field Cameras, is made to the **same register as ordinary dark slides**, and allows of their being interchangeable, thus obviating the necessity of another focussing screen.
2. The 'Adams' Changing Box takes **12 plates or 24 cut films** equally well.
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4. The 'Adams' Changing Box registers automatically every plate exposed.
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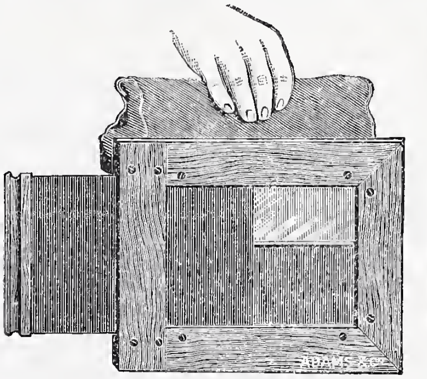
The bag is made of specially prepared leather, and is so shaped that the carriers work with absolute freedom. Being smoothly dressed inside, it prevents all risk of dust, which is so troublesome a factor with other makes.



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A very important point with these Plate and Film Holders is that the sensitive surface itself comes into contact with the register of the box; thus the thickness of plates or films is of no consequence, each one registering perfectly.

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Plates.		Outside Measurement.
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	Plates.		Carriers per doz.	Film Holders per doz.
Prices—	4¼ by 3¼	55/-	3/-	3/-
„	5 „ 4	60/-	4/-	4/-
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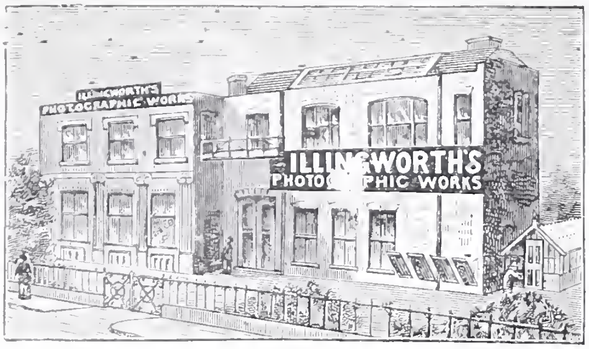
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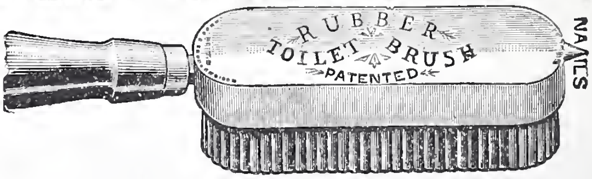

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the time of day the negative was taken. This system is easy of adoption. It is not necessary even to have a diagram on your camera—you can put your watch on the top after each exposure, a note of the number can be obtained.

Printing Clouds.—I have very little time for cloud printing, and am obliged to adopt the following rough and ready dodge to print clouds quickly. For this method you must have a thin negative. I do not use a frame, but paste brown paper to the bottom and top, place the print on the negative, and turn the brown paper at the top and bottom over the print. I then place the back of a printing frame in the usual way, and clamp one side to the negative, holding the other between finger and thumb of left hand. I shade the front portion with brown paper or anything that comes handy, roughly follow the outline with wool, and print in direct sunlight. Should there be a tower or high building with sharp outline, print it on a separate piece of sensitised paper, cut it out correctly, and stick it on the print and proceed to print from the cloud negative. Nearly all my clouds are done in this manner, and only take a very short time each.

One other contrivance I will mention, and that is a convenient way of drying sensitised plates. You may attempt to develop a plate not exposed; don't throw it away; well wash and dry. There may be other occasions when you may be puzzled for the want of a drying cupboard. For a few plates it is not necessary to have a cupboard, use your old plate boxes; the shape I show you is excellent (a sliding box). When you have a plate to dry, let it drain, wipe the back, place in the empty box film side up, and close. You will find it quite dry in the morning, presuming the box had previously been kept in a dry place.

* * *

A New Developer for Gelatine Dry Plates.

By W. P. Jenney, Ph.D.

(Continued from page 420.)

It is possible to make the emulsion so sensitive that it will not keep, readily decomposing with precipitation of metallic silver forming during development a mirror of brilliant silver over the whole surface of the negative and the bottom of the developing tray.

In place of the tartrate of silver the metabisulphite may be employed; the solution of nitrate of silver is precipitated by a weak solution of metabisulphite of soda or potash as long as a precipitate continues to form. The white or pinkish white, curdy precipitate of silver metabisulphite* is washed by decantation with cold water and dissolved in a neutral solution of sulphite of soda, forming the double salt, which finally is incorporated with gelatine and glycerine in the above proportions.

The grade of photographic gelatine known to the trade as No. 2 appears to be the most suitable. The harder grades of gelatine afford thick and sticky emulsions, while soft gelatines, such as No. 1, have but feeble restraining power.

Glycerine, when forming 15 to 25 per cent. of the volume of the emulsion, is an efficient preservative. The addition of glycerine renders the gelatine more tractable in incorporating the concentrated solutions forming the developer. It has but little restraining action when used alone.

The best experimental results were obtained with the tartrate and the metabisulphite of silver. Sulphite of silver, produced by precipitating nitrate of silver by its equivalent weight of sulphite of soda, is but little soluble in water and is easily washed. The precipitate readily dissolves in a strong solution of sulphite of soda, but when combined with gelatine is less sensitive to electrolytic action than the tartrate. An impure double sulphite of silver and soda can be readily prepared by the addition of a solution of nitrate of silver to a saturated solution of sulphite of soda as long as the precipitate formed dissolves on stirring. The nitrate of soda produced by this reaction if not removed seems to have a restraining action when the developer is prepared with hydroquinone. As pyro is not as strongly influenced by the presence of nitrates, it may be found practicable to prepare the silver salt in this manner in developers in which pyrogallic acid is the reducing agent.

In like manner ammonia may be used in argentic emulsions with pyro, though the addition of ammonia to a hydroquinone developer instantly arrests all reducing action.

Developer No. 1.

A.	
Argentic emulsion (prepared with silver tartrate)	5 oz.
Metabisulphite of soda	120 gr.
B.	
Eikonogen	200 gr.
Hydroquinone	100 ,,
Metabisulphite of soda	120 ,,
Pure glycerine	1 oz.
Distilled water (hot)	4 ,,
C.	
Carbonate of potash	144 gr.
D.	
Caustic potash...	270 to 300 gr.
Distilled water (hot)	¾ oz.
E.	
Bromide of potash	72 gr.

Solution A is prepared by warming the emulsion gently in a water bath in a glass or porcelain vessel of a capacity of about 16 oz.; the metabisulphite of soda is stirred in dry, immediately before incorporation with B.

The eikonogen, hydroquinone, and metabisulphite of B are mixed together dry; the water, heated nearly to the boiling point, is mingled with the glycerine and poured over the mass, which immediately dissolves if rapidly stirred, forming a clear golden-yellow solution.

The incorporation of A and B requires careful manipulation, to avoid the precipitation of the gelatine or the reduction of the silver salt. These solutions are mixed at a temperature of 110 to 140 deg. Fahr.; a few drops of B are added to A, with rapid stirring continued for several minutes until the emulsion, which at first darkened, becomes of a lighter shade. The remainder of B is then poured gradually, a little at a time, into solution A, stirring constantly.

The emulsion should show but little change in colour; it is at once neutralised by C, mixed dry. Carbonic acid is evolved, the emulsion changes to a dark drab colour and some gelatine separates as a dark-coloured precipitate. D is then added in successive portions; the colour of the emulsion changes to yellowish orange, and the precipitated gelatine redissolves. The amount of caustic potash required varies with the purity of the chemicals and with any change in the formula. It is best to add to each ounce of the developer from 2 to 4 gr. of the caustic potash in excess of the quantity required to dissolve the precipitate.

Care should be taken to determine the least amount that will form a permanent emulsion; if the proportion of potassium hydrate is too great, the combined silver and gelatine are precipitated.

E is dissolved in the emulsion and produces no apparent change in its appearance. Water is added sufficient to make the volume 12 oz. The developer is bottled and cooled in a stream of water, with frequent shaking.

Thus prepared, this developer is permanent and but little affected by a moderate exposure to daylight; it is kept in bottles of dark-coloured glass and wrapped in paper.

The density and colour of the resulting negatives are much affected by the relative proportion of eikonogen and hydroquinone in the above formula. In the proportions given, of 2 parts eikonogen to 1 part hydroquinone, the negatives produced are brilliant black in the high lights and of extreme density. With 240 gr. of eikonogen and 80 gr. hydroquinone, a ratio of 3 to 1, the negatives are gray black, with relatively less density, but with extreme detail.

Composition per Ounce of Developer No. 1.

Eikonogen	16·7 gr.
Hydroquinone	8·3 ,,
Gelatine...	3·5 ,,
Sulphites of soda	48 ,,
Carbonate of potash	12 ,,
Caustic potash...	25 ,,
Bromide of potassium	6 ,,
Tartrate of silver	4·8 gr. = 1 per cent.
Glycerine	1·5 dr. = 19 ,,

It should be noted that the object of using metabisulphite of soda in the above formula is to make the solutions A and B acid when incorporated, in order to diminish the reducing action of the eikonogen and hydroquinone upon the silver salt. It is more difficult to combine these solutions when alkaline, not infrequently metallic silver is precipitated. By careful manipulation, however, an equivalent quantity of neutral sulphite of soda may be substituted for the metabisulphite.

Carbonate of potash is employed to neutralise the metabisulphite of soda; it also greatly diminishes the action of potassium hydrate upon the gelatine film, preventing, at a temperature not exceeding 60 deg. Fahr., the frilling or cutting of the edges of the film by the caustic alkali.

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* Whether this silver salt is a true metabisulphite is somewhate uncertain. It is different in behaviour in the emulsion from the silver sulphite produced by precipitating silver nitrate by sodium sulphite.

Bromide of potash, in the presence of the great excess of alkaline salts in this developer, keeps the shadows clear and transparent, even with prolonged development. It has no restraining action, but in the proportions of 5 to 8 gr. per ounce of developer appears to act rather as an accelerator.

This developer is adjusted by a trial development upon an extremely undertimed plate; the picture should appear in 25 to 30 sec.; if longer, 2 to 3 gr. of caustic potash and 1 to 2 gr. of bromide of potassium are added to each ounce, to accelerate the action.

There are evidences that this emulsion undergoes ripening if kept in a warm place, or if heated to a temperature of 130 to 160 deg. Fahr. for some hours; the effect of this ripening remains to be investigated. In some experiments a gray precipitate of silver bromide formed, and the electrolytic sensitiveness of the developer was increased.

The objections to the above developer are the complicated formula and the large amount of caustic alkali used, necessitating development at a low temperature, not exceeding 60 deg. Fahr., to avoid cutting the film. It also requires, to form a permanent emulsion, careful manipulation in compounding, and is much affected by any change in the purity of the chemicals used.

DEVELOPMENT.

If the preparation is complicated, the development is correspondingly simple, and it is practicable with a little experience in its use to obtain results that are unapproachable in density, and can only be equalled in detail by skilful manipulation with pyro.

For instantaneous and under-timed exposures the developer is used without dilution; if desired, the action may be restrained by the addition of water. Two trays are used in development, the larger filled with cold water, in which the smaller tray containing the developer partly floats. The negative is placed in the developer and disappears from view beneath the opaque emulsion; the tray is rocked until the picture comes up. It is only necessary during the development to occasionally rock the trays, the viscidity of the developer preventing an unequal chemical action, or the settling in spots upon the film of any sediment.

The progress of the development is judged by the colour of, and appearance of, the plate when viewed by transmitted light. The low lights and shadows are indicated by white spots in the film, which become yellow-brown as the action proceeds; the development is stopped when the plate is opaque and a walnut-brown throughout.

The negative is thoroughly washed, and the surface of the film is rubbed with the hand under a stream of cold water, to remove the adhering emulsion; it is then fixed as usual.

When working with plates that have received nearly equal exposure, the time of development furnishes the best guide in obtaining the desired detail and density. There is a wide margin in time when instantaneous views and extreme under-exposures are developed. A good negative may be obtained in six to twelve minutes; if the development be prolonged to half or three-quarters of an hour, no harm is done, save that the negative, from increased density, will print very slowly. When desired, the development may be prolonged for one or two hours by changing the water in the outer tray so that the developer is kept cool and the film uninjured

This developer may be used repeatedly without exhausting its power or staining the film.

INTENSIFICATION.

Negatives that have undergone development may be intensified before fixing. For the primary development there is probably nothing better than pyro and soda. No bromide is used, and the development is conducted so as to bring out all the detail possible, keeping back density in the high lights, in order that all parts of the image may be nearly uniformly dense. When no more detail can be obtained, the negative is thoroughly rinsed in a stream of cold water, and the secondary development conducted with any of the argentic developers, preferably with No. 1. The action is quite rapid, and should be carefully watched, lest the negative be over-intensified. The time required for secondary development is from three to fifteen minutes. The best guide is the appearance of the plate when viewed by transmitted light. The development is finished when the negative becomes brown and opaque, without any light spots in the film. It is then immersed in cold water, the surface of the film is gently rubbed beneath the water with the hand or with absorbent cotton, to remove any adhering emulsion, and the negative is fixed with hypo in the usual manner.

In this secondary development the action of the argentic emulsion appears to be an electrolytic building up of the image in metallic silver. This view is confirmed by the fact that a negative after fixing and washing may be slightly intensified by immersion in the argentic developer. In this case the electrolytic action is very slow, and could probably be made more energetic by increasing the sensitiveness of the emulsion, and indicates that it would be possible to make an argentic intensifier for negatives after fixing by employing a very sensitive emulsion with ferrous sulphate as a reducing agent.

DEVELOPER NO. 2.

A.	
Argentic emulsion (prepared with silver tartrate)	6 oz.
B.	
Sulphite of soda crystals (pure and neutral) ...	2 ,,
Water (hot)	8 ,,
C.	
Amidol	120 gr.
D.	
Bromide of potassium	8 gr.

The argentic emulsion is gently warmed, and the sulphite of soda solution B gradually mixed with it. If a precipitate of gelatine forms from too concentrated a solution, warm the emulsion on a water-bath, and add gradually hot water until it dissolves. The emulsion, which is of a light olive colour, is allowed to cool; C and D are added dry, and quickly dissolve; the volume is made up to 16 oz. by water, and the developer is immediately bottled, to avoid absorption of oxygen. Tested with litmus paper it should show a faint alkaline reaction.

COMPOSITION PER OUNCE.—DEVELOPER NO. 2.

Amidol	7·5 gr.
Gelatine	3·1 ,,
Sulphite of soda (free)	60 ,,
Sulphite of soda (combined with silver salt) ...	25 ,,
Bromide of potassium	0·4 ,,
Silver tartrate...	4·6 ,,
Glycerine	$\frac{3}{4}$ dram = 8 per cent.

This formula is less complicated and more easily prepared than No. 1. Only a minute quantity of alkali is required, the sulphite of soda acting as the accelerator, and in consequence, in prolonged development, there is little danger that the film will be attacked. It is also practicable to use a more sensitive argentic emulsion, prepared with the least proportion of gelatine that will restrain the silver tartrate, in order to increase the electrolytic action. This developer has been but little investigated; it is probable that metol, or a mixture of metol and hydroquinone, can be substituted for the amidol in the above formula, and other alkalies employed, such as caustic lime, lithia, or baryta.

DEVELOPMENT.

In hot weather, or when the development is greatly prolonged, it is advisable to keep the developer cool by an outer tray containing ice water, as heretofore described. Usually with formula No. 2 this is not necessary, and the development is carried out much in the same manner as with pyro. The action is started with 1 oz. of the developer mixed with 3 to 5 oz. of water; 2 to 3 drops of a solution of—

Carbonate of potash	120 gr.
Water	1 oz.

are added to each ounce of the mixed developer to accelerate the development.

The strength is increased by the addition of fresh developer as the operation proceeds. It is only necessary to occasionally rock the tray. The action is less energetic than developer No. 1, and the negative does not so rapidly become opaque. The point at which to terminate the development is judged in the same manner as with pyro, save that, as there is no danger of fogging, it may be prolonged until the negative is dark and opaque. The plate is rinsed in water and fixed as usual. The negatives developed with amidol emulsion much resemble in appearance those produced by pyro.

With a developer of this class it would be practicable, when many negatives were developed, to employ a grooved rubber bath (such as are used for hypo), filled with the developer and immersed in a vessel of coal water. The vertical position of the plates would prevent any sediment in the developer settling upon the films.

CONCLUSION.

The formulæ here given are selected from nearly fifty experimental developers prepared with various emulsified silver salts combined with different developing agents. They illustrate the preparation of argentic emulsions and the combination, in a chemically passive condition, of such emulsions with reducing agents, in photographic developers.

Much experimental work yet remains to be done to determine the formulæ best adapted for use. The gelatine and the silver salts have a tendency to slow the action in development. It is desirable that the time of development should be shortened and the electrolytic action of the silver salt made more energetic.

Welford's Rapid Toning Bath for Gelatino-Chloride Paper.*

By Walter D. Welford.

Last year I had the pleasure of bringing before your notice an exceedingly rapid and simple method of toning gelatino-chloride prints, by using a much more concentrated solution than usual. At the time I was seeking rapidity of action merely, and, as the means necessary proved to be of the utmost simplicity, that point was added also. Upon the question of the resulting tone, I also claimed an approach to platinotype, and, though my results then fully bore out the claim, I think it would be wiser now to describe the tone as of a neutral nature, neither too warm nor too cold, but ranging between the warmth of a silver print and the coldness of a platinum or bromide.

But the matter of tone altogether is so much a matter of taste that it would be better to merely put the one obtained by my experiments as the result, without claiming anything for it. Complaints were made that the workers could not get warm, brown, and red tones with it, which caused me to wax wroth at the idiots who used a bath specially devised for cold tones, with the idea of getting warm, and then thought the bath no use in consequence. Therefore, for the present, I claim the following points as the features of my method of toning:—

1, Great speed of action; 2, absolute simplicity; 3, no trouble to work.

The idea has often occurred to me that we are sometimes too hasty in accusing a man of being old-fashioned and stick-in-the-mud, because he prefers old methods and won't change, as we, perhaps, have done, to newer ones. The point is often overlooked that the new method, however excellent in many directions, may yet lack any improvement in the particular one appreciated by the older worker.

The above bath is an illustration, and one no doubt applicable to many workers. If rapid work and simplicity be to them no attraction, then it cannot be expected that they will forsake an old friend which perchance gives them a tone they like better.

To make a personal application of this thought, I should hardly be attracted by any toning bath that was no improvement upon mine as regards speed and simplicity. Our pet ideas govern our thoughts and wishes to a greater degree than we imagine or would be willing to allow. It therefore matters but little how vast the improvement be; if it is not in our own direction, we perhaps prefer to stick in the old groove.

All my experiments have been made with the direct object of obtaining speed in toning. This I have decidedly accomplished, as I shall prove to you later on. But only those who have left the beaten track of toning baths for that of experiment, know the great variety of tones obtainable—or, rather, obtained—for they are not always obtainable; at least, it is difficult to insure the same tone again, and I have settled down into the conviction that batches of paper must vary considerably. With exactly the same bath, and under precisely similar conditions, different tones are obtained. I have practically tested this by using four pieces six months, four months, and two months old, and a piece bought the day before. These, when toned *together* in the same bath, have not resulted in the same tone. It may be that some gradual chemical action takes place in the emulsion upon the paper in the course of storage. I am convinced that it is not atmospheric influence at all, because I have carefully stored pieces nine months, and then exposed to air for a week in a dark corner pieces of absolutely new paper. The result was that the new paper did show traces of the treatment, but the old did not. It is therefore either a difference in the emulsion or a chemical action during storage.

The range of tones obtainable upon gelatino-chloride paper is simply marvellous. The fact strikes the experimenter most powerfully. Upon many occasions the results have caused me to use language which was quite warranted by the exigencies of the case, and was good English, but quite unfit for publication. The density of the negative, its colour, the length of time printing, and even the degree of washing before toning, all had a hand in the tone. However, as tone is to me at present a secondary matter, we will dip at once into actual experiment.

I fully intended last year, during the autumn, making a complete attack upon the question of rapid toning, but business did not permit, nor, for various reasons, have I been able to do much till lately. Even now, living in chambers, the opportunities and conveniences of work are most limited. Still, I have convinced myself of several points. When I first introduced the bath, the extremely rapid action seemed likely to be a boon; but, when scant attention to it followed, it not being even thought worthy of insertion in the annals of progress published at the end of the year, it struck me that perhaps there wasn't very much in it after all, and for months, though using it exclusively myself, the subject did not bother my head. Recently, however, occasion arose, after three or four months' complete absence from any printing work at all, that batches of 100 to 150 prints every night were necessary. The same bath was used, and the fact that it was a good thing came most forcibly to my mind. I determined to experiment further, and the present paper is the result.

The experiments were all made with two main objects—rapidity of toning and finality of result, leaving the resulting tone to be the unknown factor. The principles laid down were:—

1. Each print must tone completely in two minutes as a maximum.
2. There must be a definite tone (finality) which no reasonable amount of after-immersion can alter.

The reason of the first is obvious. By the second, I wanted to get the power of what may be termed "careless work," that is, that, if the print be unevenly toned, it can be put right afterwards. As a matter of fact, my first point in starting a batch is to see that they will readily tone unequally.

Two kinds of paper, "Solio and P. O. P.," the former in white and pink tints only—owing to inability to obtain the mauve—and the latter in all three. Prints from the same negative were toned in the four following baths:—

Bicarbonate Bath.

Gold	1 gr.
Bicarbonate of soda	25 gr.
Water	$1\frac{1}{2}$ oz.

Acetate Bath.

Gold	1 gr.
Acetate of soda	20 gr.
Water	$1\frac{1}{2}$ oz.

Phosphate Bath.

Gold	1 gr.
Phosphate soda	25 gr.
Water	$1\frac{1}{2}$ oz.

Borax Bath.

Gold chloride	1 gr.
Borax	40 „
Water	$1\frac{1}{2}$ oz.

All these baths worked rapidly enough, but the acetate one requires mixing at least an hour before use, whereas the others can be made up immediately.

The first result arrived at was that the tint of the paper governed the tone more than any differences in the bath. I will detail the actual results:—

Pink paper (P.O.P.) ...	No difference in tone at all.
White „ „ ...	The acetate bath gave a slightly redder tone; the rest, alike
Mauve „ „ ...	No difference.
Pink paper (Solio) ...	No difference.
White „ „ ...	Bicarbonate, grey-black; phosphate, a warmer tint; borax, warmer still; and acetate, quite a purplish pink.

Upon the whole, the best results were obtained upon white Solio, mauve P.O.P., and white P.O.P. The latter, with the bicarbonate and borax baths, gives a tone very closely approaching that often obtained in platinum toning, viz., a very warm sepia. As a general rule, white paper should always be used if a grey-black tone be desired.

Leaving, now, the question of tone altogether, to deal with rapidity of action, there is not much to choose between bicarbonate, phosphate, and acetate. But I certainly prefer the bicarbonate bath as the best of these four, at all events. Mixtures I did not try, as I was aiming at simplicity. The less mixtures in photographic formulæ the better, is my maxim; and, certainly, in toning baths for gelatino-chloride papers we can do with a little more simplicity. Some of the concoctions put forward are a credit to the ingenuity of the chemist, viz., the number of ingredients possible to be put in without injury. They are simply preposterous.

You will see later on that my assertions as to the speed of toning will be borne out by the demonstration. I noted down the other night the time occupied by a batch. A whole-plate tray was used, and the following bath:—

Bicarbonate of soda	$1\frac{1}{2}$ drachms.
Chloride of gold	4 gr.
Water	6 oz.

The prints were merely laid in the tray and kept under the solution by touching with the fingers; the tray itself was never moved. Until the last few prints it took all my time to get them in and out fast enough. Even then I lost time by having to light my pipe.

---

* Read before the London and Provincial Photographic Association.

Total toned	105 quarter-plates.
Full time	28 minutes.
First print	23 seconds.
Last print	70 „

One that occupied about forty seconds to tone was left for nearly an hour in the bath, and the resulting tone was no different. If we say fifty minutes, that means a period of time which may be roughly stated as twenty-five to one. The print was certainly flattened or bleached a little, but the tone was not different. This proves that my claim to a finality of tone is quite within reason.

By this means the power of what I have termed "careless" toning is acquired. A print can be half toned, the other half not touching the solution at all, laid aside for a time, and then finished. There will be no mark apparent. Or spots and streaks can be dealt with in the same way.

Of course, I in no way advocate such treatment, nor that prints should be toned for fifty minutes when forty seconds will suffice. These are merely extreme experiments, but they serve to show how easy this method of work renders the toning of gelatino-chloride paper, which it must be admitted in some toning baths is certainly not the case.

There is one point worth reference, which is that the actual amount of bicarbonate of soda in the bath is not, within limits of course, a matter of much importance. At least experiments with three-quarter drachm to two and a half drachms, the gold and water remaining the same, have not produced any different results. The only thing I can fancy to have noticed is that the more bicarbonate the slower the toning and the greater tendency towards warmth of tone. But one and a half drachms is a fair workable proportion.

The mere relation of the advantages of the bath impresses no one. Every one fails to grasp its advantages to a considerable extent; but, when shown it in actual work, it is altogether different. For that reason I shall proceed to demonstrate it before you to-night, and in doing so will work completely in my usual fashion.

I claim for the bath that it is the most rapid in action and most simple in working of any one ever introduced, and the resulting tone is to me and to many others a pleasing one.

The Thames and its Estuary.

By D. E. Goddard, F.R.M.S.

The day trips of the "Koh-i-noor," "Royal Sovereign," and "Lord of the Isles," those magnificent Clyde-built steamers of the Victoria Steamboat Company, afford to the hand-camera man rich opportunities for good work. The Thames and the estuary, including Ramsgate to the south, and Harwich to the north, present a succession of studies unrivalled for variety, and endless in accidental facilities for marine picture making.

We would advise that before embarking for a day trip, the student should work the river thoroughly from London Bridge to Greenwich and back. The return ticket is only 5d., and two hours would be ample for each trip.

Directly the bridge is passed work begins. Off Fresh Wharf a busy tug often darts out of the nest of shipping, giving a good foreground with the Tower in the distance. The Dutch eel-boats off the Custom House, if well lighted, are unique and picturesque. The Tower, if there happens to be a good foreground, will make a picture, so will the new Tower Bridge, taken up to 12 o'clock, from about the entrance of St. Katherine's Docks, with the dome of St. Paul's in the distance. The composition will be improved if a barge with sails set is passing underneath.

Between Globe and Cherry Gardens Pier there will generally be found two or three Norwegian or Swedish timber ships, with their quaint windmills on deck and their yards in admirable disorder. Limehouse, with its old houses and its usual foreground of small craft, will, if well lighted, repay a plate. Perchance there may be a large full-rigged ship waiting to come out of the adjacent dry dock. Off Deptford, if the old "Racoon" can be snapped a good example may be added to a series representing the old paddle-wheel sea-going steamer, now rarely to be met with. Between Millwall and Greenwich good studies of barges under sail abound.

We therefore advise that no plate should be exposed by those undertaking a day trip on subjects that can easily be procured at any time. All plates and films will probably be required later in the day.

Between Greenwich and Gravesend, unless exceptional studies present themselves, only very few objects of interest will be passed—viz., the *Conway* at Purfleet, and the *Exmouth* and *Shaftesbury* at Grays.

The real work of the day will commence at Tilbury. From the moment the steamer's paddles move after taking in her passengers the sharpest look-out should be kept and the camera ready at a moment's notice. A pair of good marine glasses are a great assistance. The great difficulty will be what studies to select from the ever-moving panorama along the "silent highway." As we near Southend numerous oyster smacks will be met with—should a fleet of them be passed through, some very fine pictures ought to be the result.

Passing Southend Pier several fixed points will be arrived at: the Nore, the Girdler, the Tongue, and the Prince's Channel light-ships. It will depend on circumstances as to the distance, but very often the Nore light is too far off to do more than give a distant object in a study of sky and sea.

The great expanse of water may be prolific with splendid opportunities of taking ships with every sail set, and large ocean-going steamers, or there may be nothing but a solitary barge plodding her way under her huge sails. Should she be loaded with hay, or her canvas be old and patched, so much the better.

Margate Jetty is worth a snap, but often lying between it and the lighthouse will be found groups of smacks that will be well worth a plate or two, especially on the return journey, when fine cloud effects may be expected.

The North Foreland on its wall of cliff, Broadstairs with its old-fashioned jetty will be worth a shot if within effective range.

Ramsgate is certain to contribute something to our stock of negatives. The life-boat tug, *Aid*, famous for its glorious record of perilous service on the Goodwins, lies moored close to the pier. The harbour is often crowded with small craft. On a recent visit only the *Aid* and a few yachts were visible, but a fine chance gave us some good pictures. A three-masted schooner was snapped with topsails set, approaching the harbour, again close to the head of the south pier, and again when she had entered the harbour with her crew aloft, furling sails. The position in which she anchored made the foreground of a good picture. This is an illustration of the necessity of keeping a good look out, also that often the best pictures occur suddenly, almost without warning; if everything be not ready, the chance is gone. On the return journey will be reaped the advantage of not being too lavish with the films or plates, for many good subjects will be met, especially yachts cruising between the Nore and Gravesend. The G. S. N. Co. daily run a boat of the *Oriel* class to Dover. Between Ramsgate and Dover the facilities for marine photography are greatly increased. The *Gull* light-ship; the Downs, sometimes crowded with shipping, sometimes not a mast to be seen, excepting, alas! those that mark the grave of some unfortunate vessel. Deal, Walmer, Kingsdowne, with the sun on them in the morning will give good results. The South Sand head-light; the rampart of chalk cliffs, regularly ruled with lines of flint; St. Margaret's Bay; the South Foreland; Dover, with its broken cliffs, its old castle and new pier; the Granville Docks and Shakespeare's cliff will well repay economy of plates in the early part of the day. We may observe that very rough water may at times be met with in the straits, offering good subjects for the hand-camera in waves breaking over the bows of the boat.

The course run to Harwich is not so rich in varied subjects as the one described. It is possible that we may meet a grim battleship, a smart cruser, or one of the mosquito flotilla rushing over the measured mile. Coasters under sail, and yachts, and sometimes Norwegian timber ships will, if within effective range, make good pictures. The Mouse and Middle Twin lights are worth a plate each. Clacton Pier, crowded with people watching our arrival, will repay a snap. The picturesque town of Harwich is wonderfully rich in all kinds of picturesque and marine subjects. Fishing smacks of all kinds, the old-fashioned jetty, the steam life-boat, often a light-ship under repair in the Pound, a brig in dry dock, and steam launches, all supply plenty of food for the ever greedy, but never satisfied camera. In the centre of the harbour the guard-ship, lately the ironclad *Hotspur*, but now the fast cruiser *Mersey* will be worth careful study.

The Orwell is a lovely river at high tide, and Ipswich a quaint old-fashioned town, and wherever a nest of pointed gables arrests the attention, a grand church tower will be seen in the background.

There is one more trip, viz., by the *Lord of the Isles* to Southend round the Nore to Sheerness. If any of our readers ask Captain Prior to put some newspapers on board the lightship, studies may be obtained which are absolutely impossible under other circumstances. Sheerness will generally give some good plates of war ships.

We may mention in conclusion, that we have found a changing bag made by Mr. W. R. Baker, of Wallington, not only a great comfort, but also an absolute necessity. These trips are most delightful, and will supply plenty of work for lantern slides, and for enlarging during the winter.

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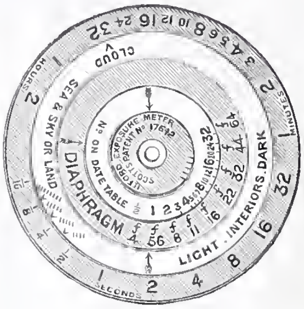

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The Elements of Photo-micrography.

BY "MIKRON."

(Continued from page 418.)

WITH regard to the source from which the illumination is to be obtained, much will depend upon individual circumstances, such as the length of time or amount of trouble the operator may care to spend upon its arrangement, or the money he may be able or willing to spend upon the more costly arrangements specially made for this purpose. The very best light for photo-micrography is, beyond doubt, sunlight; but its use is open to several objections, relating not so much to the light itself as to the uncertainty as to when it will be available and the length of time it will remain so. During the past few weeks we have been basking in a truly liberal supply of direct solar light, and those who use this source of illumination have been favoured with exceptional opportunities for doing good work. However, this state of affairs cannot be relied upon, and, consequently, sunlight, in most cases, is put out of the question. Another cause of its disfavour is found in the fact that most microscopists pursue their study during the evening or night time.

A further and very potent objection arises from the expensive and complicated nature of the apparatus required, as, owing to the rotation of the earth, the light for this purpose cannot conveniently be received direct from the sun. It is, therefore, necessary to have a mechanical appliance by which the effect of such rotation may be neutralized, and thus produce a steady beam of light travelling in a straight path. Such an arrangement is known as a heliostat: it is an instrument having a mechanical movement by which a spindle set parallel to the earth's axis or at an angle with the horizon equal to the latitude of the place, is caused to revolve once in twenty-four hours; the spindle being made to carry a mirror. It is necessary for its efficient use that a convenient window having a southerly outlook should be available.

Most of the heliostats are made to stand outside the window and at some considerable distance from the microscope, consequently, if they are not of very perfect construction their errors are appreciably enlarged by reflection. These, however, may be considerably reduced by adopting the following arrangement, which may be found published *in extenso* in the Journal of the Royal Microscopical Society for May, 1890. The paper referred to dealt with special reference to a simple form of heliostat and its application to photomicrography. Neither space nor time will permit of a lengthy account being given of this particular instrument; but the paper mentioned is so thoroughly practical that the writer is persuaded that a brief account of it will not be out of place in these columns; and, furthermore, a careful perusal of the original would probably induce some ingenious amateurs to give it a fair trial.

The author, Thomas Comber, F.L.S., places his heliostat inside the window and close to the microscope, thereby diminishing errors due to imperfections in its construction. Moreover, the heliostat and all its accessories are mounted on a wooden stand, so as to have them always at hand, and thus save the time and trouble of arranging them whenever they are required.

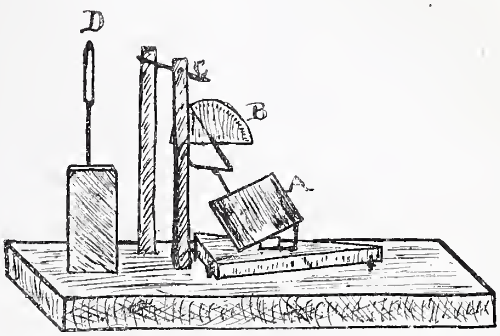
An ordinary brass time-piece A, forms the heliostat, to which is added an additional motion to cause the spindle to revolve once in twenty-four hours. The spindle need not necessarily be in the centre of the clock. The time-piece is mounted on a triangular brass plate provided with levelling screws, and is fixed at an angle with the horizon equal to the latitude of the place in which it is to be used. When the brass plate is levelled by means of a spirit-level, and its point is directed due south, the clock is in the plane of the equator, and the spindle at right angles to it is parallel to the earth's axis.

The spindle is a slightly conical arrangement to which is fitted, friction-tight, a small mirror B, with universal motion, so as to be easily adjusted by the hand. An ample size for the mirror is 2 by 1 inch. It has to be set in such a way that it will reflect the light from the sun in the direction of the spindle, when the rotation of the spindle is exactly equal to that of the earth, only in the opposite direction. It thus compensates for the apparent motion of the sun, and the reflected beam remains steady in one direction.

A second fixed mirror, C, is placed where the reflected beam crosses the optic axis of the microscope; this reflector must be inclined to the horizon at an angle equal to half the latitude of the place, by which means the reflected beam is brought into the axis of the microscope. An alum cell, D, is placed between this mirror and the condenser, to absorb the heat rays.

In all instruments of this class due care must be taken to ensure the centre of the fixed mirror being in the optic axis of the condenser and microscope. If the spindle of the heliostat when viewed through the microscope appears exactly end on in the centre of the field, the heliostat will then be in its correct position, and the movable mirror can be placed upon it. The adjustment of the mirror, however, presents no more difficulty than that of the ordinary mirror attached to the microscope.

Glass mirrors, having their silvered surface at the back, give a double reflection, which is again doubled by reflection from the second mirror, thus resulting in a considerable loss of light, and as glass silvered on the surface was found to tarnish too quickly, speculum metal was substituted. But even these are by no means perfect, as the reflected light is said to have a distinctly reddish tinge.



The writer of these lines would advise those of his readers who are fond of experimental work, and who can afford to devote a little time to this source of illumination, to endeavour to silver their own mirrors, and to use, instead of ordinary glass, the small sheets of extremely thin glass used for making microscope cover glasses. These sheets are to be obtained several inches in length, and on account of their extreme thinness they should be almost equivalent to the use of a pure silver surface.

Dr. Woodward avoids the trouble arising from the condensation of solar heat by passing the beam through an achromatic lens about 2 in. diameter and 10 in. focus, placed at such a distance from the sub-stage condenser that the rays are brought to a focus and begin again to diverge before reaching the condenser itself. He also found it possible to obtain good photographs by sunlight without the aid of the heliostat, by using a large right-angle prism placed in such a position as to produce total reflection. An ordinary mirror may also be used, and, in fact, many photographers scarcely ever employ any other means of reflecting sunlight. Such a plan, however, is troublesome and annoying, as when a series of photographs is required the illumination must be specially adjusted for each picture.

The magnesium light ranks next in value to sunlight. But it, too, is open to several objections of a serious nature, such as the removal of the dense white clouds of magnesium oxide formed by its combustion, and the difficulty experienced in obtaining a really steady light when fairly long exposures are required. When, however, photo-micrography is pursued merely as a hobby, and a brilliant actinic light is required for only a very limited time, the magnesium light is undoubtedly of great use.

The electric light is another source of powerful light for photographic purposes. But, unfortunately, it is even yet out of the reach of most microscopists, as it is a troublesome light to manufacture for one's own use, and only a limited few are placed in a position affording them the opportunity of receiving it direct from an electric supply station. The arc light is altogether out of the question on account of its unsteadiness and the great heat which it throws out. The incandescent light, however, may be used with advantage, but with objectives of low power it may be found inconvenient, owing to the image being incompletely illuminated. If such should be the case it will be well to allow the light to pass through a piece of very fine ground glass or thin opal, so as to diffuse the rays as much as possible.

For bacteriological work and, speaking generally, for all branches of photo-micrography requiring the use of objectives of high power for long exposures, one of the most reliable sources of illumination is afforded by the "lime" or oxy-hydrogen light. By the use of the cylinders of compressed gas, and the admirable regulators now in the market, an exceedingly steady light of very great intensity can be obtained. It is, however, less actinic than the magnesium or electric light. Only the best lime-cylinders made should be used for this purpose.

(To be continued.)

Exhibitions.

THE PHOTOGRAPHIC EXHIBITION IN TOKYO.

A PRIVATE view of the pictures was given on the 13th ult., by kind invitation of Viscount Enomoto, President of the Photographic Society of Japan, and was largely attended by the leading residents of the capital. The building chosen for the display, or, to speak more correctly, the only building available at this moment, is not well fitted for such a purpose, being totally without attractive features of its own. But light and space are abundant, and the photographs have been disposed in a manner that we cannot too highly praise. It need scarcely be added that the arrangements for the comfort of the guests on the 13th ult.—music, refreshments, and so forth—were thoroughly good. To each person was handed a descriptive catalogue printed on tinted crape with charming decorative designs on every page, a work of art in itself. As for the photographs, it was in many cases difficult for the uninitiated to realise that such pictures were nothing more than mechanical reproductions. The impression conveyed was rather that of fine steel engravings, crayons, sepia paintings, pencil drawings—anything, in short, except the products of the camera. In truth, one is immediately taught by such a display that photography has entered a new era, that it has passed into the hands of artists from those of artisans, and that the goal towards which it is pushed is to hide the camera completely and approach as closely as possible to the easel and the canvas. We do not propose to speak here of the various technical methods represented in the exhibition. That branch of the subject must be reserved for a future notice. Our theme for the moment is the artistic side of the display; its pictorial rather than its photographic features. What conspicuously attracts attention is that to this mechanical work, at the outset wholly objective, there has now been imparted a strongly subjective character. The artist makes himself felt not merely when he reproduces landscape, but even when he takes a likeness. Instead of thinking only of the object represented, one instinctively turns over the leaves of one's catalogue to look for the name of the artist. There are, of course, "tricks of the trade," which, however striking their effects, offend by their artificiality. The use of the flash-light is an instance. Lyddell Sawyer's pictures, for example, and R. H. Lord's, beautiful and interesting as they are, suggest too much clever mechanism. "The Boat-Builder" (No. 5), "Reflections" (No. 3), "The Toper" (No. 8), "Idle Moments" (No. 17), and so forth will be scanned admiringly by many eyes, but are not pictures that would improve upon acquaintance. Then, again, there are faults of technique that recall the still tentative character of the art. In No. 15 ("How's That?"), for instance, we have a delightful subject spoiled by a monstrosity; the hands of the figures present themselves under a magnifying glass instead of through the lens of a camera. No. 43, by H. P. Robinson, suggests the idea that a solid section of sea has been set up as a wall beside a group of women who sit and lie gossipping at its base. Moreover, the greatest artist is evidently not yet absolute master of his methods. F. M. Sutcliffe's "Water Rats" (No. 54) is one of the best things in the whole exhibition, but the same artist's "Hurricane Corner" (No. 60) and "Among the Breakers" (No. 61) leave a great deal to be desired. As for Henry Stevens' flower studies (Nos. 117, 118, 119, 120, and 123), they are most aggravating. Paper blossoms equally stiff and formal would be rejected as failures in millinery. Speaking of failures, attention must be specially directed to Henry Vander Weyde's remarkable work with the "Photo-corrector" (*vide* Nos. 169, 170, 171, and 172). This artist has devised a mechanical process —the secret of which remains entirely with himself—for correcting the faults of a negative. If the hands or head of a portrait be out of proportion, his "corrector" puts them right in a few minutes. In one picture he shows us a female figure seated on an artistically false plane with respect to the environment, and in another the same figure, after ten minutes' exposure in the "corrector," has risen to a proper and pleasing level. These results are most interesting and curious. We do not know whether Weyde's remarkable machine could be utilised to correct faults due to the difficulty of combining different negatives in the same picture. If it possesses that capacity, a pretty wide field for its employment offers even in the admirable pictures of the Camera Club, for the defective joining of negatives often produces lines that could never exist in nature. But, on the whole, photographs calling for the use of the "corrector" or inviting unfavourable criticism of any kind, are rare exceptions in this collection. The great majority of the exhibits are surprisingly beautiful. It is hard to particularise, amid such universal excellence. The four sent by Bernard Alfieri (Nos. 19, 20, 21, and 22) are types of a numerous class—lovely bits of soft delicate work and feelingly selected subjects. In Nos. 39 and 40 we have crystal clearness of detail combined with exquisite lightness and grace, while 19, 20, and 22 suggest pencil drawings rather than photographs. Hector Colard's series, Nos. 236, 237, and 238, seem to take us as far away from the camera as it is possible to get; and Tyser's 163 brings us back to it almost as closely as did the photographs of twenty years ago. In snow scenes Mrs. Main—*vide* Nos. 165, 166, and 167—is very successful, but the Exhibition contains nothing of this type equal to Ogawa's latest work. Ogawa, indeed, is competent in certain lines to stand abreast of the best artists of the Camera Club, but he is probably the only Japanese photographer of whom that may be said. Very interesting are the works of George Davison (Nos. 82 to 89), and R. Briant (Nos, 146 to 157), representing the school that eschews everything like a sharp edge or clearly defined outline. Nature, indeed, always deals in masses and never in lines, yet it is not possible to say that these lensless photographs reproduce Nature truthfully, however correct may be the theory underlying the method. Mr. P. H. Emerson sends a beautiful series (Nos. 260 to 271). One examines them with more than common interest, knowing the immense influence which this artist has exercised on photography. To Emerson, indeed, more than to any other single worker, may be attributed the disappearance of the old-style photograph and the birth of the processes to which we owe now so much; a change not to be over-rated, seeing that it has induced artists to take up photography as a study worthy of the best intellects and the highest ideals. Nos. 181 and 295 deserve special notice, the first because of the artist's absolute success in concealing every evidence of art; the second because of its extraordinary softness and absence of all perceptible debt to any mechanical process. Shapoor N. Bhedwar, a Hindoo artist, sends a series of very fine photographs—Nos. 135 to 140. They are technically perfect, but as works of art they do not stand on so high a plane as some of their fellow-exhibits; the grouping of the figures is too studied. This fault is often perceptible, especially when attempts are made to pose models in positions of passion or strong emotion. Great painters conceive such situations with more fidelity than models act them, and the photograph is seldom really successful when applied to these purposes. We need scarcely say that the instantaneous process is admirably represented. Nos. 221 and 222 are good types, powerful and picturesque. Several interesting examples of single colours obtained by the carbon process are exhibited. "The Sea Dream" (No. 113), by W. Clement Williams, will probably attract much attention as a monochrome of this class, but for our own part we find it somewhat heavy, its sea solidified and its sky stereotyped. We prefer such seascapes as those of Bennett (*vide* Nos. 105 to 109). But space fails to particularise even roughly all the beauties of the display: the portraits (especially those of Mrs. Cameron and Fred. Hollyer), the twilight and night effects, the moonlight scenes, the peeps of exquisite landscape, the seascapes, and so forth. It must be sufficient to say that the collection shows modern photography under all its most artistic and scientific aspects, and constitutes such a display as is not likely to be again visible for many years in Japan. Perhaps we ought to explain that though we have spoken of 296 pictures only, the total number actually shown is 341, but the last forty-five, sent by the Foochow Camera Club, have no business to appear at all. Why they were sent and why they have been hung we fail to understand. It is scarcely necessary to suggest that no one taking any interest in art should fail to visit this exhibition. Nothing like it has hitherto been organised in Japan. The Japanese public owes much gratitude to the Photographic Society of Japan and to the Camera Club of London.—*Japan Mail.*

* * *

Free Dark-Room for Convention Visitors.—Mr. S. B. Turney, Pharm. Chemist, of 183, Union Street, Plymouth, places his recently fitted up dark-room at the disposal of all attending the Convention at Plymouth. Ilford, Paget, Thomas, and Marion's plates, and the usual chemicals and sundries are also kept in stock.

The "A. P. Annual."—". . . . The whole is carefully edited and decidedly, for the amateur photographer at least, indispensable."—*Bucks Advertiser*, June 17th, 1893. ". . . . To those amateurs who propose touring during the summer the work is invaluable."—*Torquay Times*, June 16th, 1893. ". . . . The best illustrated annual that has yet been published in the English language."—*Alnwick Guardian*, June 16th, 1893. ". . . . Of its helpfulness there is no room for doubt."—*The Brighton Herald*, June 17th, 1893. ". . . . For its beautiful illustrations alone the 'Annual' is worth the money."—*Luton Times*, June 16th, 1893. ". . . . Is a neatly arranged and valuable addition to the literature on the fascinating pursuit."—*Bristol Times*, June 17th, 1893. ". . . . Contains articles of considerable length and real utility."—*Manchester Guardian*, June 20th, 1893. ". . . . The technical and illustrated portions of the manual are thoroughly well done, and in this respect this volume is one of the best of its kind we have seen."—*Perthshire Courier*, June 20th, 1893. ". . . . Will be of much interest to amateur photographers."—*Builders' Reporter and Engineering Times*, June 21st, 1893.

Societies' Notes.

The Harringay Society will in future be known as the Finsbury Park and Harringay Photographic Society, and ladies are now eligible for membership. A series of instructions for beginners is about to be commenced, and all wishing to join should apply to the Hon. Secretary, C. Frith, 8, Cavendish Road, Harringay, N.

* * *

Mr. S. Morris, of 36, Thimble Mill Lane, Birmingham, is now the Hon. Secretary of the Birmingham Photographers' Union, vice Mr. P. E. Gilmer, resigned.

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Societies' Meetings.

Ashton-under-Lyne.—This Society had a ramble to Monsal Dale, Ashford-on-the-Water, and Bakewell on 24th inst. They took train to Monsal Dale, and under the leadership of Mr. J. T. Lees they left the station, and after taking one or two views of a number of cows which were drinking near a foot-bridge on the river Wye, they followed the road and through a farm-yard to the railway viaduct, where the river turns sharply to the right. From here to Ashford the camera was constantly at work photographing waterfalls and picturesque dales and woods all the way. Several views were taken about the old marble-polishing works, where there is a very beautiful water mill, well worth spending several plates upon. This is without doubt one of the most picturesque spots in all Derbyshire, which is saying a great deal. On leaving the old mill the party were soon at Ashford, where, after taking several views of the old church and one or two sunset pictures, they visited the "Devonshire Arms" to refresh the inner man. After tea the party were photographed as usual and made the best of their way to Bakewell, after spending one of the finest photographing days of the season.

Birmingham.—Ordinary meeting on 20th inst., Mr. F. S. Goode in the chair. Mr. Hendren then continued his lecture on "Christian Architecture in England." Mr. Hendren, in the course of his very interesting remarks, showed by diagrams the various forms of arches, pointed and round, and the evolution of one from the other; also the various kinds of decorations commonly in use both on arches and pillars. Several of our well-known cathedrals and other public buildings served to illustrate this or that style of work; a large number of photographs being shown. Many members asked the lecturer questions, which he kindly answered, and a profitable discussion followed.

Brixton and Clapham.—At the meeting held on the 20th inst. Mr. C. Goodwin Norton gave a demonstration on "Photography by Artificial Light." He advocated the use of five or six blow-through jets, arranged in a cluster and enclosed in a box, in front of which a tissue or prepared calico screen should be stretched. The exposure averages from 8 sec. to 12 sec., and the results are very good. The average cost per sitter is about threepence for the limes and compressed oxygen. Reflectors of some white material will be necessary in order to lighten the shadows a little. The light should be suspended from the ceiling of the room by a cord, and it should be about 6 ft. from the ground. Better results are claimed for this light than from the magnesium flash-light. The electric light would, of course, be better, but it is beyond the reach of the majority of professional photographers at present. The whole cost of the outfit is only about £5 complete. Specimen photos taken with this light were passed round, and at the conclusion of the demonstration discussion took place.

Croydon.—Despite that a start was made during a terrific downpour, a very fair number of members proceeded to Edenbridge on 24th inst., when, conducted by the President, Mr. H. Maclean, F.C.S., a thoroughly delightful ramble along the Eden valley was enjoyed. The best scenery for photographic purposes was found by the riverside, whence several views were made, both below and above the village. Passing by a somewhat devious but pleasant footpath in the direction of Lingfield a variety of subjects were met with. Some of the hop oasts and gardens by and beyond Marsh Green, although time did not permit members to secure views of them, were very "takeable."

Durham.—The second outing of this season was held on 21st inst., the rendezvous being Fountains Abbey, Ripon. There was a good turn-out of cameras, and the weather all that could be desired. Fountains Abbey is truly an ideal spot for photographers, consequently a large number of exposures were made. After doing justice to a substantial dinner at the "Crown" Hotel, Ripon, the members returned to Durham, having had the most enjoyable outing since the formation of the club.

Gosport.—On 20th inst, before a good attendance of members, Mr. S. Herbert Fry, of R. W. Thomas and Co., Ltd., gave a highly successful demonstration on the "Sandell Plate." The specimen prints from negatives taken on Sandell plates were much admired and spoke volumes for the efficiency of the plate. Mr. Fry, after elaborate explanations which were closely followed, developed three negatives with good results. An attractive programme of excursions has been arranged, full particulars of which can be obtained of the hon. secretaries.

Hackney.—Ordinary meeting held 20th inst., Mr. W. Fenton-Jones in the chair. Members' work by the following was shown:—Mr. Roberts and Mr. Hudson, results of Barnet plates. Mr. Avent recommended beginners to read "Photo Mosaics." Mr. Carpenter advised a soft light for portraiture; Mr. Nunn had taken some indoors with the blinds drawn. The Chairman then sketched the method of taking portraits outside, which was to have a very large clothes-horse, and so make a sort of out-door studio, placing a kind of blind over to regulate the top-light. Mr. T. H. Smith showed some pictures he had taken on Barnet plates by gaslight; one had five minutes and the other forty minutes; both were under-exposed. Mr. Avent had taken portraits using six Welsbach incandescent lights, and found that five or ten minutes would be about right exposure. The Chairman then showed and explained a Wynne's exposure meter. It appeared to him to be a very good and cheap article, and he said he would try and report further on it. Mr. Penny showed two negatives; one had been enlarged by the Cresco-Fylma method and the other by using hydrochloric acid, 2 dr. to 4 oz. water. The result was precisely the same. Owing to the unavoidable absence of Mr. Hensler, Mr. Gosling started a discussion on toning. He was in favour of plenty of gold and the use of the sulpho-cyanide bath for P.O.P. Mr. Nunn said he had obtained yellow tones when using borax. Mr. Barnes used a lead toning bath, but the colour was too slaty. The Chairman said he had read that chloride of aluminium was recommended in place of alum to harden the gelatine in the prints, the great recommendation being that they could be the more readily handled without injury.

Hexham.—The third outdoor meeting of the season was held at Blanchland on the 22nd inst. under the leadership of Mr. E. C. Spencer. The party, consisting of the members and their friends, including a number of ladies, drove by the Linolds and Slaley, and, after a very delightful drive over the moors, reached the quaint old village of Blanchland. The bonnie banks of Derwent, together with the famous "Gibraltar Rock" and Hunstanworth Church, were next visited, and the party returned to Blanchland. The old village and St. Mary's Abbey Church proved of great interest to the photographers, and after inspecting the old rooms in the "Lord Crewe Arms," including the bedroom of Dorothy Forster, they sat down to tea. The weather was somewhat unfavourable, but a most enjoyable day was brought to an end by the party returning through the picturesque park of Minsteracres by the kind permission of Mr. H. C. Silvertop, J.P.

Leicester.—The above society had their first half-day excursion this season on the 24th inst. to Barkby, a village about seven miles distant. The weather during the afternoon turned out most suitable for securing excellent pictures, with the exception that occasionally the wind was a little too strong. The President (Mr. J. Porrett) acted as view-finder to the party, and soon discovered plenty of work for the camerists to do. The views selected included old farmsteads, rustic stepping stones, snugly thatched cottages, ivy-clad and moss-crowned roofs, brooklets on whose rugged banks grazed the homely cow, and giant trees showing their gnarled and twisted roots, while their graceful branches and varied foliage threw such shadows on the waters beneath as made the eyes of the artistic glisten, and filled the heart of the photographer with joy. When all the plates were exposed, a move was made to the residence of Mr. F. W Kemp, who had invited the President and his party to pay him a visit. Here a sumptuous tea was provided, to which every one, to the number of twenty members and friends, did ample justice. After the inner man had been satisfied, an adjournment was made to the drawing-room, where Mrs. and Master G. Kemp, Mr. Porrett, jun., Mr. Groves, performed some excellent classical music; during the intervals Mr. Dunmore and Mr. Johnson gave some amusing recitations and comic songs. At the close a hearty vote of thanks was given to the host and hostess. In reply, Mr. Kemp, in well-chosen words, expressed the pleasure it gave him and Mrs. Kemp to be honoured by such a goodly company, and intimated that he hoped this would only be a prelude to many more similar meetings. The party then broke up, all regretting that time was so short, and the second red-letter day of this season's excursion had come to a close.

SOCIETIES' FIXTURES.

June 29—ASTON.—Social Evening.
„ 29—DUBLIN (Y.M.C.A.). — Competition of Prints by the Members.
„ 29—LIVERPOOL. — Demonstration and Lecture, by Mr. W. T. Wilkinson, on "Photogravure."
„ 30—HOLBORN (Camera Club).—Judging and Comments on the Competition Prints.
July 1—BRISTOL (Camera Society).—Excursion to Pensford and Publow.
1—WEST KENT.—Excursion down River in *Clacton Belle*. Leader, Mr. E. E. Jones.
„ 1—PHOTOGRAPHIC CLUB.—Excursion to Richmond.
„ 1—MANCHESTER.—Ramble to Healey Dell.
„ 1—RICHMOND (Camera Club).—Excursion to Eynesford.
„ 1—BIRMINGHAM.—Half-day Excursion to Meriden.
„ 1—NORTHERN PHOTOGRAPHIC AND SCIENTIFIC ASSOC. — Excursion to South Kensington Museum.
„ 1—BOLTON.—Excursion to Wigan for Haigh Hall and Park.
„ 1—NORTHAMPTONSHIRE.—Excursion to Kingsthorpe Mill and Up River.
„ 3—SOUTH LONDON. — Demonstration, "Print - out Lantern Plates, Opals," Mr. J. Belton.
„ 4—CHEETHAM.—"Bromide Printing," by A. V. Wilkinson.
„ 4—BRIXTON.—Open Meeting.
„ 4—HACKNEY.—Open Night.
„ 5—PHOTOGRAPHIC CLUB.—The Development of Under-exposed Plates.
„ 5—OLDHAM.—Ramble to Alton for Alton Towers.
„ 5—BOLTON.—Excursion to Wigan for Haigh Hall and Park.
„ 7—LEWISHAM (Camera Club).—Criticism of Prints and Negatives (good or bad). Critic, Mr. B. Davidson ; second critic, Professor Lambert.
„ 8—BRISTOL (Camera Society).—Excursion to Ashton Court and Church.
„ 8—WEST LONDON.—Excursion to Kew Gardens.
„ 8—MANCHESTER.—Ramble to Monsal Dale and Ashton-on-the Water.
„ 8—PAISLEY.—Excursion to Regatta.
July 8—NORTHERN PHOTOGRAPHIC AND SCIENTIFIC ASSOC.—White Webbs Park and Enfield.
„ 8—GOLDSMITHS' INSTITUTE CAMERA CLUB.—Excursion to Chislehurst.
„ 8—ROCHDALE AND DISTRICT.—Excursion to Greensclough.
„ 8—HACKNEY.—Excursion to London Colney.

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The "A.P. Annual."—" . . . . And may be heartily recommended to the attention of amateur photographers throughout the country."—*The Scotsman*, June 19th, 1893. " . . . . To the novice it will be almost invaluable, and we commend it to the notice of all those who indulge to any extent in photography."—*Public Opinion*, June 16th, 1893. " . . . . Amateur and professional will hardly fail to put the book down without adding much to their store of knowledge.—*The Technical World*, June 17th, 1893. " . . . . To the vast army of amateur photographers this handsomely got up Annual will be a welcome acquisition."—*Belfast News Letter*, June 10th, 1893. " . . . . It has the inestimable advantage of being edited by a man who knows the wants of the class he is catering for."—*South Bucks Free Press*, June 23rd, 1893. " . . . . The amateur photographer ought to acquit himself well under the direction of so expert a guide as this Annual."—*The Salisbury and Winchester Guardian*, June 24th, 1893.

The "A.P. Annual."—" . . . . The illustrations are perfect, and the letterpress of a valuable and practical character."—*Globe*, June 12th, 1893. " . . . . A very useful and attractive book to all amateur photographers."—*Westminster Gazette*, June 12th, 1893. " . . . . Every amateur should possess a copy."—*Isle of Wight Times*, June 14th. " . . . . Teems with interest for the amateur, and cannot but be useful to the professional photographer."—*Advertiser for Somerset*, June 15th, 1893. " . . . . Is a book to be prized by the professional as well as by the amateur photographer; and few readers of intelligence and taste but will find it difficult to resist the attractions of the art as here seductively presented."—*North-Eastern Daily Gazette*, June 16th, 1893. " . . . . We have no hesitation in recommending the Annual to photographers, amateur and professional. It is replete with information."—*Forfar Herald*, June 16th, 1893.

To Correspondents.

All communications for these columns are to be addressed to **The Editor, "Amateur Photographer," 1, Creed Lane, Ludgate Hill, London, E.C.**

RULES.

1. Write clearly and distinctly on one side of the paper only.

2. Write each Query or Answer on a separate sheet of paper.

3. Write the name and address legibly on the back of each communication, and sign all Queries and Answers with name or *nom de plume*.

4. All matters for these columns MUST be received by TUESDAY MORNING'S POST.

5. The Editor does not undertake to answer Questions by post.

6. In answering Queries correspondents are requested to mention, in every instance, the *number and full title of the query* referred to.

QUERIES.

6118.—**Stain.**—Can any reader inform me how I can remove stain from negative, caused through water being spilt in printing frame. The paper stuck to negative and stained it yellow ; paper used was known as self-toned.—FARMBRO'WAF.

6119. **Dunchurch.**—Will any one let me have one or two views of above village ? I will exchange views of this neighbourhood, Rochester, or buy them. —G. RANDALL, 76, High Street, New Brompton.

6120. **Clovelly.**—I should be much obliged if any one can tell me where lodgings can be obtained in Clovelly ?—L. H. L.

6121. **Redcar.**—Can any one kindly tell me if there are any good views to photograph at the above-named place ?—QUERIST.

6122. **Lantern-Slide Camera.**—I wish to make a camera for making lantern slides from half-plate negatives, and should be glad if any reader could give me any information how to proceed, and what size and quality of lens would be needed.—FREELANCE.

6123. **Hand-Camera.**—Would some of the readers of the AMATEUR PHOTOGRAPHER kindly say from experience what form of hand-camera they would recommend as suitable for lantern work ; price about £2 ; and if they would send a print I should esteem it a very great favour. Address with Editor.—FRITZ.

ANSWERS.

6065. **Varnish.**—It is impossible to include every virtue in one varnish. White hard varnish 2 parts, solution of ammonia 1 part, is easy of application and dries quickly.—EDITOR.

6075. **Lock Tickets.**—Season tickets may be obtained from the Thames Conservancy.—EDITOR.

6085. **Printing-in Clouds.**—As nobody else steps into the breach, I would say that my method of working is precisely the same as for silver paper, that is, cutting a mask out, fit the landscape, and after this has been printed-in, covering the print with mask, and then exposing for the clouds ; the only difference with bromide paper is that the print is placed with the landscape uppermost on a sheet of glass, and the whole developed with a brush.—F. J.

6094. **Zermatt.**—See "Amateur Photographer Annual," 1893.—EDITOR.

6097. **Ely, Lincoln, Peterborough.**—See "Amateur Photographer Annual," 1893.—EDITOR.

6102. **Colour Negatives.**—This query is unintelligible. If the querist means that he wishes to obtain a negative the deposit on which is all of one colour, it is not a difficult matter ; if, on the other hand, he means how can he photograph, allowing one colour only to act, we should advise him to refer to Ives' method of working for heliochromic negatives.—EDITOR.

6114. **Toning.**—"R. G. J." should get Anthony's "Photographic Bulletin Annual for 1892," in which there is a very useful article written by F. M. Rood on page 96 of that volume.—D. H. W. PREEDY.

6117. **Harwich, Walton-on-the-Naze, and Clacton-on-Sea.**—The following I have culled from the "A. P. Annual, 1893" :—"Clacton : a popular seaside resort ; steamers ply between here and London, and the trips to Harwich and Ipswich are much enjoyed. Friston should be visited, and the village and the church (which is one of the smallest in England) of St. Osyth, where there are the remains of an old priory."—D. H. W. PRNEEY.

QUERIES UNANSWERED.

June 2.—Nos. 6097, 6102.
„ 9.—Nos. 6106, 6108.
„ 16.—Nos. 6109, 6110, 6111, 6112, 6113.
„ 23.—Nos. 6115, 6116.

EDITORIAL.

SPECIAL NOTICE.—*We are very pleased to find that replies in this column are so much appreciated, but we should be very grateful if those requiring advice would send their letters to us* BEFORE TUESDAY MORNING'S *post if possible. The time occupied in replying in this column is very considerable, and owing to the often late receipt of letters, many matters have to be left over each week. This w much regret.*—ED. AM. PHOT.

J. Lawrence.—The back of the camera is cut through so as to form a little door, which is opened or lifted so as to allow of the focussing screen being seen. What shutter do you refer to? The lens named is probably as good as any other at the price, and if you cannot afford more, why, get that.

E. B. H.—Judging from your prints, you are using too much bromide and too much pyro to commence with, and your fault is not so much the non-suiting of development to exposure, but not sufficient variation for subject. Why not try metol, which gives far softer results? With regard to the instrument you name, we have never tried it, but it is very highly spoken of by numerous well-known workers.

W. B Dart.—The subject you name would be eligible for the "Photography at Home" competition.

J. Pike.—Many thanks, we will utilise.

E. G.—Reduce your pyro or hydrokinone to one-tenth of the normal quantity, but keep the bromide and alkali normal; this would fetch the detail out, and density can be obtained afterwards by increasing the hydrokinone or pyro. With regard to the direct positive and your query we are unable to find it, but if you will give the page on which it appeared we may be able to help you.

A. P. O'Brien.—Ruby glass is, if of the proper kind, the best medium, but two thicknesses of Hunter's medium (see advt.) would be quite safe. The only book is "The Studio, and what to Do in it," by H. P. Robinson.

Barrow.—There is not much fault to find with your prints from the technical side. No. 2 is a little too black at the sides, but both are rather wanting in artistic merit. You have too many straight lines, which tend to cut the pictures into two or more pieces.

B.—Use instantaneous iso, *f*/16, and about 1-10th sec. For the setting sun use medium iso backed, and *f*/32 and 1-20th sec.

C. D. Richardson.—All the marks on your negatives are due to the development not covering the plate evenly. Probably you are using too little developer. The marks have nothing whatever to do with the maker of the plates.

A. W. Malinson.—For one thing your print is much over-exposed, then hydrokinone always has a tendency to give greenish tones, especially if bromide and caustics are used. We should advise you to try amidol, metol, or glycin for it.

Novice.—(1) The fault lies in not cleaning the glass properly. The simplest plan is to wash your glass well, dry it thoroughly, and then give it a coating of solution of wax and resin in benzole—

Yellow wax	36 gr.
Yellow resin	12 ,,
Benzole	2 oz.

Apply to the plate and rub off gently, then squeegee prints. (2) You can obtain ferrotype dry plates from Fallowfield, but the ordinary kind are made by wet process. We shall have some articles on them shortly.

E. F. B.—(1) Probably the little white specks are lime precipitated from the washing water, the best thing to prevent and remove the same is a weak acid bath, such as citric or hydrochloric acid ¼ oz., water 20 oz., or the acid may be added to the alum solution. Before answering any queries as to restoring negatives we should have to see them. The stop supplied with the lens named is about *f*/12.

Q.—Nos. 1 and 2 are both good, although you might well spare a little foreground; about an inch off each would have improved them. (3) For copying oil paintings it is essential to use isochromatic plates and a yellow screen; ordinary plates will always give a want of detail and indistinctness. (4) Good, but slightly over-toned. (5) The small blue is lost in the expanse of greenhouse; had you intended it for a portrait, you should have put him nearer and made him do something. (6) A difficult subject even for an old hand. The only time to take it would be when the sun was not shining. Considering the fact that you have only been working for six weeks, we are surprised at the excellent technical quality of the work you send, and if you pay a little more attention to artistic composition you will surprise some of us older hands.

Auld Reekie.—(1) There is no limit to the size of the prints, they may be any size. (2) "Argent. nit." is nitrate of silver; dissolve 20 gr. in one drachm of water, dissolve 20 gr. salt in one drachm of water, mix and add the resultant paste to the bath. You may reckon that every grain of gold will tone twenty-four quarter-plates, one dozen half-plates, and so on. Do not throw the bath away, but use instead of the silver and salt for adding to fresh bath. The bath may be used over again, provided fresh gold is added twelve hours before use. If there is the slightest sign of green tones in your prints, immediately mix a fresh bath; an ounce of hypo should be allowed to above quantities of the different sized prints. Wash your prints thoroughly before toning.

Lost in the Country.—(1) No, it means that practically you can use the lens at *f*/8 for any object situated in the centre of the screen. (2) The lenses named will not cover at *f*/8. (3) Detective lenses should work at *f*/8, but it is rarely necessary to use this aperture, *f*/11 is about the usual run. (4) Swift's new detective lens working at *f*/8, of 5, 5½, and 6 in. focus will probably answer all your requirements. (5) No, the plate should be merely black all over, development should be carried on much further than the point of darkening.

A Foreigner.—Permission to photograph in Hyde Park is necessary, and may be obtained from H. W. Primrose, H. M. Office of Works, Whitehall, S.W. You can take a photograph of people without knowing them, the only thing to be careful about is that you are either the bigger man or can run well. This latter is especially necessary when the other fellow wears heavy square-toed boots or is a football player.

A. D. Taylor.—Your plates—we were going to say negatives, but they are positives—were received in about a dozen pieces. The postal authorities haven't a great liking for glass negatives, and generally manage to smash them, unless very carefully packed. Probably the fault is that your plates are under-exposed, and that you do not carry development far enough. You give no information as to what quantities of the solutions you use; but try adding the A in very small quantities at a time; commence with one-quarter of the usual quantity, and then rock the dish for about two minutes, add another quantity, and keep on like this till the plate is absolutely black all over, and the image showing well on the back. Write again and let us know how you get on.

Bogie.—If you apply to the City Sale and Exchange Rooms, 53, Lime Street, E.C., they will probably do all you require. We must decline to give the address of the other concern.

Akarana (New Zealand).—Your work on the whole is decidedly good, and we will enter for our competitions, and you will then see the criticisms on the same. You are printing somewhat too deep, however.

Erastus.—We have not inserted your query, for the simple reason that it is absurd to ask for a good shutter for a particular lens. Any shutter may be used on any lens, but as to what is the most suitable shutter for the class of work you would use it for, robably one of the blind type would answer all your requirements.

A. L. S.—(1) You do not say whether you are using the metol in two solutions or not. If you are, then add a small quantity of bromide, about 1 gr. to every ounce of developer, and add your alkali gradually. Potash is preferable to soda. The only fault with your negatives seems to be that you do not continue development long enough. The plate should be absolutely black before removal. The quick appearance of the image is characteristic of this developer. (2) Yes, fix, well wash, and then alum. (3) No. It is necessary with some plates. (4) Yes, we should say the meter would help you. Density and opacity are synonymous in ordinary photographic parlance. Your prints have been printed in too strong a light, and in the architectural studies the camera was not straight

Geo. P. Moon.—A shutter working in the position you name is the most efficient shutter of any form. The Thornton-Pickard make one of this pattern, so that the slit may be widened or narrowed if desired, and at the same time increased speed is obtained by tension of a spring. The only disadvantage is that there may be distortion of the image, but we have never seen it, and have used shutters of this type over five years. It is far superior in efficiency to any shutter working at or near lens.

Parker.—We are not prepared to say that it is the best, because what may be the best for one man may be useless or worst for another. It is a well-made, reliable camera, and the lens is one of the advertised makers' best ones.

Jacobus.—The only possible way to introduce the one figure into the group is by combination or double printing. Coat the back of the negative with Beales's non-actinine or any non-actinic paint. Scratching off over the figure you wish to obtain, print this, and then print in the group in the ordinary way, taking care to block out enough on the group to allow for the new figure.

Hartinpol.—We see no reasons why you should not compete in our competitions.

W. M. Brabyn.—You must let us know whether you prefer magazines or dark slides, and whether you want to use it on a stand or in the hand only.

Toko.—Letter by post.

Botany Bay.—(1) Landscapes and little home bits, as well as portraits and figure studies, are admissible in photography at home. (2) Paste your negatives, lay the tissue flat on the table, and then gently and carefully lower the negative on to it; this is the only way—you cannot paste the paper.

Camera.—We must decline to give the address. The City Sale and Exchange Rooms, 53, Lime Street, E.C., will supply apparatus on the hire system.

Fritz.—Your price is very low, but we insert as a query, and will write privately if desired.

Colonial.—Vignetted landscapes are admissible, but you must decide whether they are advisable. We place no restrictions on competitors as to style.

Enquirer.—Many thanks for explanation, which had occurred to us, but we never supposed you had not looked for this The lens you name will not cover a half-plate sufficiently well for your purpose. We would suggest one of the Zeiss or Goerz's new lenses. You cannot avoid the distortion of perspective by the use of any particular lens; it is the shortness of focus which gives this distortion.

A. H. Garner.—We have also met with the same thing, and are, therefore, careful to omit the alum.

Sale and Exchange.

RULES.

CHARGE.—*Twelve words or less for* ***Fourpence,*** *Every additional* ***three words, one penny.*** *The name and address of the sender* ***must be paid for.*** *(A single figure, or group of figures undivided by letter, space, stop, or words, counts as* ***one*** *word; compound words count as* ***two*** *words.)*

DEPOSITS.—*Money for goods forwarded on approval may be deposited with the Publishers of the* Amateur Photographer, *who will hold the amounts deposited until they are satisfied that the transaction has been completed to the satisfaction of buyer and seller.*

COMMISSION.—*A charge of 2½ per cent. will be deducted from all deposits whether a sale is effected or not. Minimum charge* 1s.

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CARRIAGE *must be paid on all apparatus sent for report, and they will be returned* ***carriage forward.***

ADVERTISEMENTS *can be inserted under a number, the name and address being registered, and letters forwarded for a fee of* 3d. *to cover postage.*

ADDRESS.—*All advertisements (which can be received up to* ***Tuesday*** *mid-day) and other communications having reference to the Sale and Exchange column, must be addressed "Sale and Exchange,* Amateur Photographer, 1, *Creed Lane, London, E.C."*

REPORTING.—*Apparatus may be sent to the* Editor, Amateur Photographer, 1, *Creed Lane, London, E.C., who will report upon the apparatus to the* ***buyer*** *for a minimum fee of* ***2s. 6d.,*** *or a commission of* ***2½ per cent.,*** *upon the sale price of the apparatus.*

Backgrounds.—Four capital scenic backgrounds (new), flatted oil, on canvas, 8 ft. by 7 ft., 22s. 6d. each.—A. Skinner, Photographer, Teddington.

Cameras, etc.—For sale, whole-plate Middlemise camera, three double backs, approval, 65s.—C. Smithson, Lightcliffe, Halifax.

Cameras, Lenses, etc.—Aptus Universal hand-camera, an instrument of the highest class, see full description in British Journal Almanack, pp. 1,012—1,017, camera with three double slides but without lens or shutter, cost with extras £8 11s. 6d. in November, 1892, used one week, price £6 10s.; if with Wray lens, iris diaphragm, 55s. extra, or Thornton-Pickard time and instantaneous shutter (speed indicator), 18s. 6d. extra.—Doctor Gibbs, 27, Chandos Road, Bristol.

Dark Slides.—Instantograph, three perfect half-plates, 6s. 6d. each, approval.—Adams, Hermitage Mews, South Tottenham, N.

Film.—Spool Eastman's transparent film, 6½ in., 48 exposures, American make, outside cover broken, but film guaranteed quick and perfect, trial allowed, cost 33s., price 20s.—Illingworth's Photo Works, Willesden Junction, N.W.

Hand-cameras, etc.—Meteor, No. 2, hand-camera, two view-finders, new, cost 21s., take 15s.—A. G. Neale, 52, Lisburne Road, Hampstead, N.W.

Photographic instantaneous detective cameras, quarter plate, one by Lancaster, other Fallowfield, £2 5s. each.—J. S , 16, Sherwood Street, Piccadilly Circus.

Lantern slide hand-camera, carries a dozen plates, in splendid condition, with case, dark lantern dishes, etc., complete for £1.—9, Avenue Road, Clapham.

Splendid hand-camera, two finders, R.R. lens, takes plates 5 by 4, made to order, cost £6, will exchange for safety or photo. apparatus.—Frederick Sharpe, Church Street, Oakham.

Kodak, new, cost seven pounds, take five or exchange for Fallowfield Facile.—Fritz, 90, George Street, Limerick.

Hand-camera, Diamond No. 2, holds 12 quarter-plates, good lens, view finder. 20s., cost 55s.—W. J. Pink, 2, Carlisle Terrace, Old Road, Gravesend.

Adams' Ideal hand-camera, Wray's lens, £6 15s. lowest, new March.—A. Davis, 25, Carter Lane, London.

No. 4 Junior Kodak for quarter-plate, with leather case, complete, £6; light folding tripod for same, half-plate Tourist camera with two dark slides, R.R. lens, £5, or what offers?—J. O., 61, Gracechurch Street.

No. 2 ordinary Kodak, in leather case, in good order, cost 50s., price 30s.; Wray's 3½ in. focus detective lens, quite new, makes first-class wide-angle lens, price 30s.; also Adams' adjustable shutter, time and instantaneous, pneumatic regulator, quarter size, quite new, 15s.—No. 413, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Shew's Guinea hand-camera with additional slide, finder, etc., cost 30s., sell 20s., or exchange with cash for Lancaster's Omnigraph or Magazine camera.—Richardson, Kilbirnie, N.B.

Shew's quarter-plate Eclipse, with lens and shutter, rising front, finder, level, three double backs for films, one do. for plates, in leather case, scarcely used, cost £7 13s., offered for £5.—No. 414, office of this paper, 1, Creed Lane, Ludgate Hill, E C.

Lenses, etc.—Optimus 5 by 4 rapid rectilinear 27s. 6d.; Optimus 5 by 4 portable symmetrical, 30s.; separate flanges, and both fit same flange, both as new.—Artist, 3, Walpole Street, Wolverhampton.

Quarter-plate rapid rectilinear, iris, detachable hood, splendid lens, bargain, 21s.—Photo, 10, High Street, Harlesden, N.W.

Half-plate rapid rectilinear lens, best quality, superb definition, movable hood, covers sharp *f*/8, iris diaphragms, 25s., approval.—W. E., 3, The Pavement, Willesden Green, N.W.

Optimus quarter portrait lens, almost new, cost 90s., sell 42s., great bargain.—F. Abbott, Rayleigh.

Half-plate rectilinear lens, with diaphragms, new, cost 42s. What offers?—Pearce, 14, Rockville Street, Rock Ferry.

Dallmeyer's No. 2 long-focus landscape lens, iris diaphragm, list price £6 10s., offered for £4.—No. 415, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

Half-plate instantaneous lens, iris diaphragms and shutter, gives splendid definition, price 15s.—10, Moss Lane, Leyland, Lancs.

Quarter-plate instantograph lens and shutter, 13s.; Griffiths' Guinea hand-camera, 12s. 6d.—Faircloth, 7, Union Road, Vicarage Lane, West Ham.

R.R. lens, 6 in. focus, covers quarter-plate perfectly, print sent, price 15s.—R. Morse, Wickham, Witham, Essex.

Negatives, etc.—Studies of children, instantaneous photos, six professional negatives, 1s. 3d.; forty years' experience, showing requisite density.—Richford, Wells, Norfolk.

Oxygen Cylinder.—For sale, 10 ft oxygen cylinder with shackle and key, only been filled once, cost 34s., will take 20s., a bargain.—Abba, 20, Craven Street, Hull.

Sets.—Chapman's quarter-plate British camera, four double backs, waterproof case for same, tripod and case, Wray's rapid rectilinear 5 by 4 lens, with iris, cost £11. Offers? Address to S. Nicholson, School House, Rugby.

Lancaster's quarter-plate camera, complete, good lens, tripod stand, price £1.—Miss Tuck, Brandon Terrace, Great Yarmouth.

New half-plate set, complete, only £2 17s.—Miss Thoyts, Sulhampstead Park, Berkshire.

Instanto half-plate set, complete, camera with fine lens and shutter, three double dark slides, three-fold stand with ball and socket head, quarter-plate carrier, two printing frames, camera case, price £5 12s. 6d. cash.—Mellor, Engineering Department, Technical School, Manchester.

Quarter-plate camera (Lancaster), swing-back, rising front, lens, and double dark slide, in lock-up box, with tripod, complete, splendid condition, 25s.—E. Martin, Crianlarich, N.B.

Half-plate camera, single extension, tripod and stand, with view lens, 6 by 5, all by Swift, £2, or lens separate.—Inchbold, 53, Beaufort Street, Chelsea, S.W.

Half-plate camera, front extension, three double slides, R R. lens, stand, quite new, complete, £4 4s.—Massey, 73, West Clowes Street, Salford.

On receipt of £4 4s. will forward my photographic set, including half-plate International camera.—Lumsden, Grange Road, Boness, N.B.

High-class quarter camera. three double slides, latest improvements, in black stained box, patent walnut three-folding tripod, fitted with half-plate Taylor and Hobson iris diaphragms, and Newman's patent regulation shutter, pneumatic new three months ago and perfect, price £8; specimen of work.—J. R. Smith, Little London, Rawdon, near Leeds.

Lancaster's quarter-plate Instantograph, including tripod, two dark slides, lens, iris diaphragm, instantaneous shutter, nearly new, cost 50s, take 35s.—Lunham, 32, Eaton Rise, Ealing.

Stereos. Apparatus.—Lancaster's special stereo camera, with extra bellows for $7\frac{1}{2}$ by $4\frac{1}{2}$, two dark slides, tripod, etc., as good as new, exchange hand-camera, or cash £4 10s.—7, Brighton Terrace, Surbiton.

Sundries.—What offers for complete set of brasswork and leather bellows for whole-plate, also whole-plate R.R., with iris stops, quarter tripod, one-man steam engine and boiler, quantity of books, and other photographic requisites?—Barton, Eastlaithgate, Doncaster.

Accessories. Balustrade, two pieces, 12s.; gate and fence, three pieces, 14s.; ship's mast, 7s.; good condition; photographs, two stamps.—William Hare, Studio, Sutton, Surrey.

Splendid model cutter yacht, 5 ft. 6 in. long, built by practical boat builder, exchange Frena or Kodak hand-camera.—Martin, 75, East Road, West Ham.

Tripod.—Lightning tripod and case, perfect condition, cost 27s., price 17s. 6d.—Rev. J. Chapple, Lincoln.

WANTED.

Cameras, etc.—Wanted, Lancaster's Instantograph and cash in exchange for £16 safety bicycle.—72, Hartismere Road, Dawes Road, Walham Green.

Enlarging Apparatus—Lancaster's Multum-in-Parvo enlarging camera, size 12 by 10 or over, cheap.—Grose, jun., Falmouth.

Hand-cameras, etc.—Wanted, quarter-plate Talmer hand-camera on approval.—Bethune, Chemist and Photographic Dealer, Inverness

Lenses, etc.—Wanted, Ross or Dallmeyer quarter, 5 in. focus (iris).—Mr. White, Adelaide, Blackpool.

Sets.—Wanted, good quarter-plate set, half-plate lens, or good hand-camera; will exchange for either large four-air musical box, nearly new, cost 45s.—Frederick Sharpe, Church Street, Oakham.

Stereoscopic Apparatus.—Wanted, stereoscopic hand-camera, good exchange offered—10, Moss Lane, Leyland, Lancs.

Sundries.—Wanted, early books on working collodion and on albumen processes, published 1840 to '60. 15, Holmside, Sunderland.

Wanted, Hare's half changing box and alpenstock stand, lowest price.—No. 412, office of this paper, 1, Creed Lane, Ludgate Hill, E.C.

It is unnecessary to send an advertisement for the "Sale and Exchange" column for more than one insertion, as the goods are usually disposed of when the first advertisement has appeared.

Bijou Enlarging Lantern.—Patent rectangular or square condensers used by Van der Weyde and other eminent photographers, reduces size nearly half; portable, unique, scientifically constructed, beautifully made, and optically correct.

Bijou Enlarging Lantern is the only perfect enlarger, high-class lenses and workmanship.

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Bargains in Cameras and Sets.—Whole-plate Lancaster special brass-bound Instantograph, double extension leather bellows, rising front, reversing and swing back, fitted Lancaster's lens, iris stops, shutter, two double book-form slides, and folding stand, £6 17s. 6d.; half-plate patent collapsible camera, double extension leather bellows, rising front, swing and reversing back, wide-angle movement, very light, width when closed 2 in., fitted very fine rapid rectilinear lens, iris stops, three double book-form slides, and three-fold stand with lower sliding joint, bargain, £6 6s.; Lancaster's $\frac{1}{2}$-plate Instantograph, double extension leather bellows, swing back, two double slides, Lancaster's lens and shutter, and folding stand, 60s.; $\frac{1}{2}$-plate Spanish mahogany camera by Middlemiss, double extension, best leather bellows, rising front, reversing and swing back, front and back extension for wide-angle, fitted three double slides, Leviathan rapid rectilinear lens, iris stops, works *f*/8, three-fold sliding tripod and case, as new, £6 5s., worth double; half-plate Optimus rapidograph camera, double extension, best leather bellows, reversing and swing back, rising and falling front, fitted three best double book-form slides, metal divisions, clips and catches, Laverne's best aluminium rapid rectilinear lens, iris stops, works *f*/8, three-fold ash tripod and case, warranted as new, £7 17s. 6d.; Lancaster's half-plate Instantograph, fitted Lancaster lens, instantaneous shutter, two slides, and folding stand, £3 17s. 6d.; quarter-plate camera by Ross, square, leather bellows, rising and cross front, swing back, reversing, fitted Optimus rapid rectilinear lens Waterhouse stops, three double book-form slides, with patent light-tight joints and catches in solid leather case, and two-fold stand, grand lot, £6, cost £10 10s.; Lancaster's $\frac{1}{4}$-plate special brass-bound Instantograph, double extension leather bellows, swing back, etc., three Tylar's medal and one mahogany dark slides, fitted Lancaster lens, iris stops, and see-saw shutter, and folding stand, £2 5s. All above sets guaranteed as described in every detail. On view, City Sale and Exchange, 54, Lime Street, corner Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Hand Cameras.—Half-plate Shew's Eclipse hand-camera, fitted Shew's rapid rectilinear lens, rotating stops, Shew's patent shutter, four double slides, book form, complete in waterproof case, £6 10s.; Talmer's hand-camera, fitted rapid rectilinear lens, time and instantaneous shutter, two large finders, carries twelve quarter-plates, bag changing, condition as new, £4 5s.; quarter-plate Shew's Eclipse pocket camera, fitted Ross' 5 in. concentric lens, rotating stops, adjustable focus, three double book-form slides (camera and slides brass bound), Thornton-Pickard's time and instantaneous shutter, finder, folding bamboo stand, complete in solid leather case, £7; Beck's Frena hand-camera, fitted Beck's rapid rectilinear lens, time and instantaneous shutter, finder, covered leather, fitted with twenty films, finest condition, £4 5s.; Talmer hand-camera, landscape lens, rotating stops, two large finders, carries twelve quarter-plates, bag changing, 55s.; King's twin-lens hand-camera, very fine landscape lens, time and instantaneous shutter, full-size finder, automatic changing, carries twelve quarter-plates, perfect condition, 27s. 6d. All above are warranted as described. On view, City Sale and Exchange Rooms, 54, Lime Street, corner of Leadenhall Street, City (late Goy's Medium). Second-hand apparatus bought, sold, or taken in exchange. Inspection invited.

Bargains in Lenses.—Wray's 18 by 16 narrow-angle landscape lens, Waterhouse stops, diameter of lens $3\frac{1}{4}$ in., focus 25 in., condition as new, £4 4s.; Wray's 9 in. wide angle rectilinear, suitable for whole-plate to 12 by 10, iris stops, quite new, £4 10s.; whole-plate Ross's rapid symmetrical lens, fitted Waterhouse stops, grand definition, covers well, focus $10\frac{1}{2}$ in., good condition, £4 15s.; Underwood's whole-plate rapid rectilinear lens, iris stops, best condition, £2 15s.: Optimus 3B quick-acting portrait lens, fitted Waterhouse stops, works *f*/4, focus 10 in., diameter of lens $3\frac{1}{2}$ in., condition as new, £7 12s. 6d.; 8 by 5 Grubb aplanatic doublet lens, fitted Waterhouse stops, works *f*/8, best condition, £3 15s.; Ross's No. 4 portable symmetrical lens, rotating stops, 6 in. focus, quite new, £3 3s.; Optimus 7 by 5 portable symmetrical wide-angle lens, grand definition, rotating stops, as new, 45s.; Optimus 7 by 5 rapid rectilinear lens, Waterhouse stops, works *f*/8, and fitted Optimus plunge shutter, pneumatic release, as new, 60s.; Ross's 4 in. concentric lens, size quarter-plate, iris stops, condition as new, £3 3s.; 5 by 4 rapid rectilinear by Watson, Holborn, fitted iris stops, works *f*/8, movable hood, as new, 45s. On view, City Sale and Exchange Rooms. 54, Lime Street, corner Leadenhall Street, City. Second-hand apparatus bought, sold, or taken in exchange.

SECOND-HAND CAMERAS AND LENSES, etc. The best place to buy Second-hand Photographic Apparatus is SANDS, HUNTER, & CO., 20, Cranbourn Street, Leicester Square, London, W.C., who only deal in reliable and best quality apparatus. Approval allowed on all goods, with deposit. Cameras and Lenses, by good makers, bought for cash or exchanged, also let out on hire. Send for Catalogue, gratis and post-free. *Please quote this Advertisement.*

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